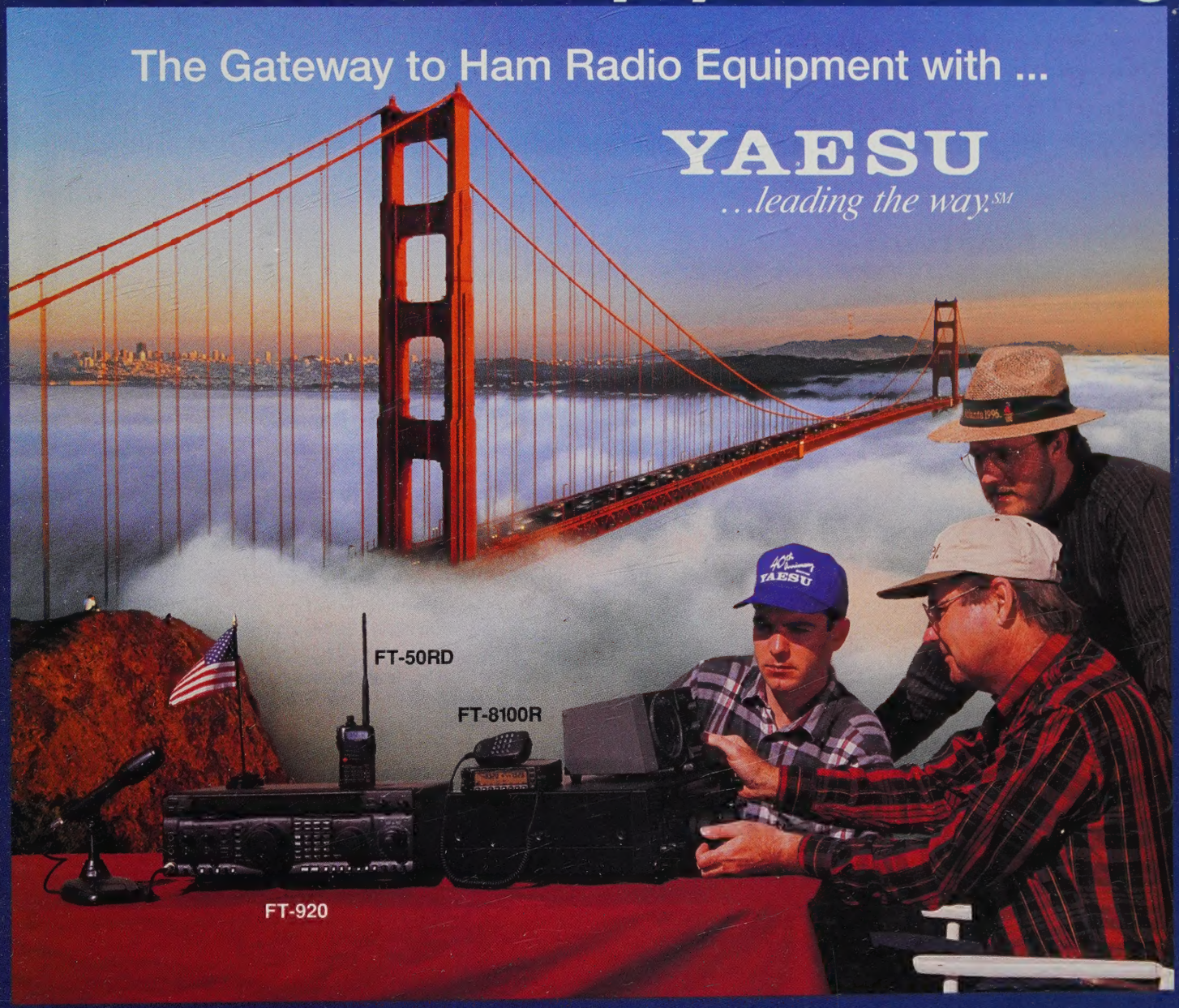
HAM RADIO OUTLET®

WORLDWIDE DISTRIBUTION

Spring/Summer 1997

Communication Equipment Catalog



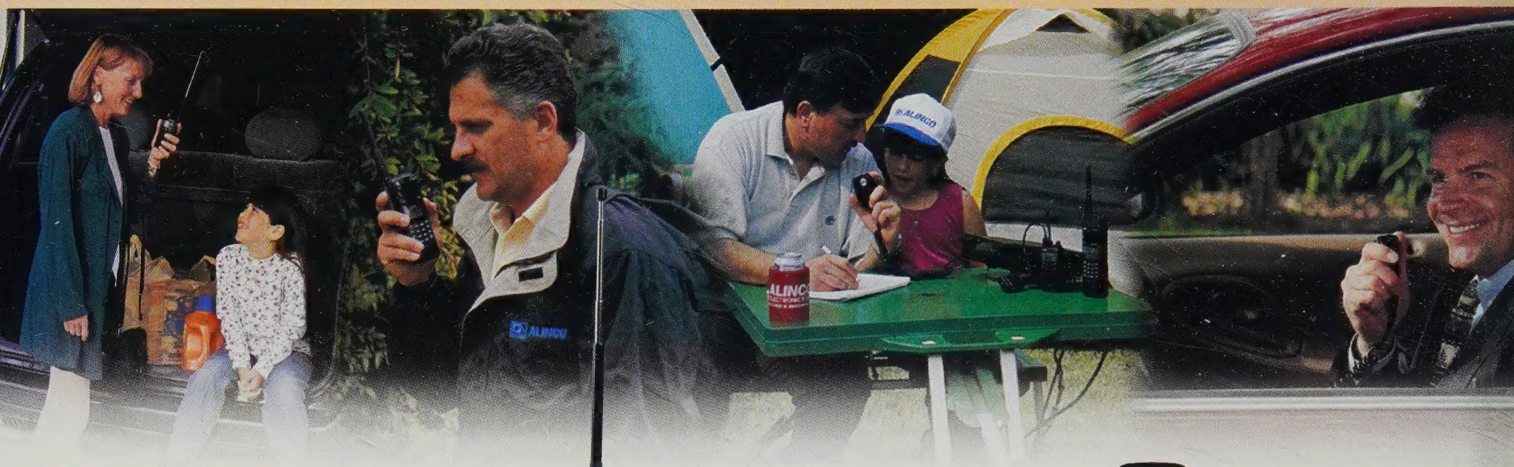
Call Toll Free for Orders and Quotes

Western US/Canada 1-800-854-6046 • Mountain/Central 1-800-444-9476
Southeast 1-800-444-7927 • Mid-Atlantic 1-800-444-4799
Northeast 1-800-644-4476 • New England/Eastern Canada 1-800-444-0047
Maps Pages: 120, 121 • Index Page: 122
On-line ordering, http://www.hamradio.com

Serving You From Twelve Locations

WHAT'S NEW AND EXCITING FROM AMATEUR RADIO'S VALUE LEADER?

Great new radios that are fun, easy to operate and very affordable!



NEW DJ-S11T 2 Meter Pocket Radio

It's the one you asked for! Full 2 Meter coverage (144 ~ 148 MHz), 21 memories, CTCSS encode, self-storing telescoping antenna, accepts speaker mic and outside power, runs on 3 AA batteries, even has MARS/CAP capability. Get all this and more at a price under $150!!

DJ-S41T 70 cm Pocket Radio

Already a "best seller," the DJ-S41T covers 425 ~ 450 MHz, has 21 memories, CTCSS encode, self-storing pivot antenna, accepts a wide range of accessories. Perfect for use with repeaters, simplex or cross band links. At under $150, every ham in the family can own one!

HF+6 Meter DX-70 TH and DX-70T

Choose your preference in output power on 6 meters. The DX-70TH transmits up to 100 watts on all Amateur Bands, 160 ~ 6 Meters; the economical DX-70T is 100 watts on HF, 10 watts out on 6. With either radio you get General Coverage Receiver (150 KHz ~ 30 MHz and 50 ~ 54 MHz), face plate that can be remote mounted, built in narrow filter and speech processor, full QSK, semi or automatic break-in, multi-function control and more. Be sure to check out the EDX-2 Antenna Tuner and Alinco's Bonus Offer!

EDX-2 Automatic Antenna Tuner

Connects directly to any Alinco DX-70 model, quickly tunes a wire or mobile whip antenna at the touch of a button. Perfect for mobile, portable, base or marine HF operations. Matches 160 ~ 10 meters (minimum 40 foot wire antenna required for 160 meters, 9.8 foot minimum for others.) Can be mounted outdoors.

Bonus! Free world time alarm clock if you purchase EDX-2 in combination with either DX-70 model prior to June 30, 1997. Ask dealer for details!**

DR-605T(Q) 2 Meter + 70 cm Mobile/Base

The reviews are in and the DR-605T is a winner! Work repeaters, simplex, cross-band, even satellites. 102 memories, CTCSS, built-in antenna duplexer, MARS/CAP capability, clone function, 9600 packet port and more at a price so low, it's hard to believe.

DR-140T(Q) 2 Meter Mobile/Base

A new full-featured radio with Alphanumeric display (up to 7 characters), 51 memory channels, aircraft (AM) plus extended VHF receive, CTCSS + European Tone Bursts, MARS/CAP capability, clean design, scanning and cloning functions, all at a very low Alinco price.

Simple ▪ Clean ▪ Dependable

ALINCO

AMATEUR RADIO'S VALUE LEADER

U.S.A. Alinco Branch: 438 Amapola Ave. • Suite 130 • Torrance, CA 90501
Phone: (310) 618-8616 • Fax: (310) 618-8758 • Internet: http: //www.alinco.com

Ask your dealer about Alinco's 2-year extended warranty program

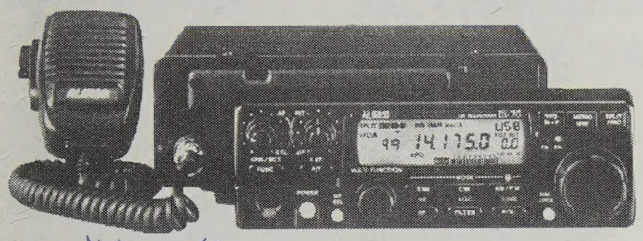
**Offer good while supplies last. Offer applies only to purchases made between May 1 and June 30, 1997. Clock requests must be postmarked no later than July 14, 1997. Please allow 4 to 6 weeks for processing. Void where prohibited.

Prices mentioned are MSRP, dealer prices may vary. Permits required for MARS/CAP use. Performance specifications only apply to amateur bands. Specifications subject to change without notice or obligation.

ALINCO ELECTRONICS INC.

HF & 6–METER MOBILES

HF Transceiver



HRO Discount Prices DX-70T: $829.95 DX-70TH: $969.95

DX-70T	DX-70TH
$957.00	$1074.00

Suggested List Prices

Alinco's mobile HF transceiver covers the HF ham bands plus 6 meters in a package the size of most VHF mobile transceivers. The conveniently small unit is designed to be user friendly. Its removable control head allows you to easily install HF in your vehicle.

- General coverage receiver.
- All-mode.
- 100 W output from 1.8-30 MHz.
- Output on 6 meters: 10 watts on the DX-70T and 100 watts on the DX-70TH.
- Dual VFO.
- 100 memory channels.
- 10 memory group scans.
- CTCSS for 6 and 10 meters.
- Detachable control head for remote mounting aids in mobile installations.
- Full QSK and auto break-in for CW operation.
- Built-in narrow band filter.
- Built-in RF preamplifier, speech processor, and noise blanker.
- Size 2.25"(H) x 7"(W) x 9"(D).

Power Supply

HRO Discount Price $169.95

$198.00
Suggested List Price

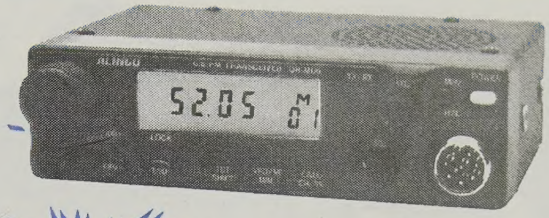
DM-1350 Power Supply

Alinco's 35-amp power supply has dual meters. It is a completely variable DC supply with ranges from 1 to 14 VDC. It will support 30 amps continuously and has a surge capability of 35 amps with less than 30 mV peak to peak ripple.

To accommodate your application, there are three different output connections. An automatic over-amperage shut-down feature protects the equipment.

©1997 Ham Radio Outlet and Asterisk Design.
This catalog may not be reproduced in whole or in part without permission.

6-Meter Mobile



HRO Discount Price $299.95

DR-M06T
$381.95
Suggested List Price

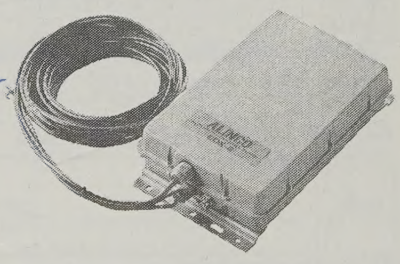
This 6-meter FM transceiver provides 10 watts output. It condenses maximum performance and operating convenience into an ultra compact, light-weight package.

- Frequency range 50 to 54 MHz.
- 5, 10, 12.5, 15, 20 and 25 MHz tuning steps.
- 100 memory channels.
- 10 watts or 1 watt power output.
- Built-in 50 tone programmable encode and optional decoder allow restricted access operation.
- Highly visible color LCD display.
- Four scanning modes: VFO, memory, priority and programmed.
- The standard mike includes UP / DOWN buttons and DTMF encoder.
- F3E (FM) modulation.
- 30 – 450 second time-out timer.

Automatic Antenna Tuner

EDX-2 Automatic Antenna Tuner

HRO Discount Price $299.95



$344.00
Suggested List Price

Alinco has designed the EDX-2 automatic antenna tuner to provide a quick match between the antenna and transceiver. It has the ability to match a length of antenna from 8 feet to 80 feet on the amateur bands from 10 to 160 meters. A minimum length of 40 feet is required for 160 meters.

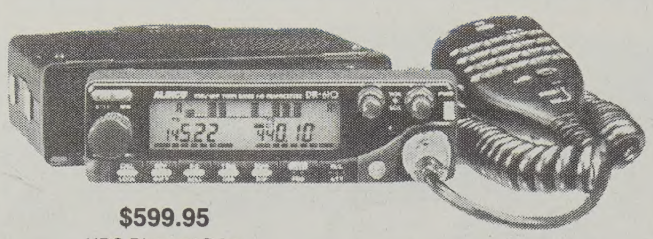
The EDX-2 is designed to be mounted at the antenna feed point and is enclosed in a weather resistant case. It is excellent for use in mobile, base or marine operating environments.

The EDX-2 comes equipped with a control cable interface designed to plug into the Alinco DX-70 HF station but the unit may be adapted for use with other radios. The tuner handles 200 watts PEP, requires a minimum tuning power of 7 to 20 watts and normally provides a VSWR of less than 2.0:1.

ALINCO ELECTRONICS INC.

DUAL-BAND MOBILES

DR-610T



$599.95
HRO Discount Price

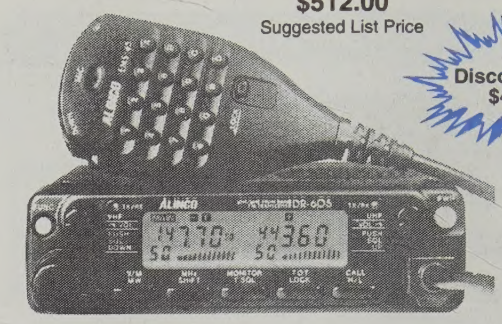
The 2m / 70 cm DR-610T is ideal for mobile or base station operation. Mount the front panel away from the radio if you wish.

- 50 watts VHF / 35 UHF.
- Built-in duplexer.
- Built-in CTCSS tone encoder. Decoder is optional.
- Two VFO's.
- Extended Receive Range: 108-174 MHz (including AM) and 420-470 MHz.
- Airband receive standard.
- Band, programmed, or memory scan.
- 5 channel auto dialer.
- 120 memories plus split channel, call channel and program scan memory. Expandable memory: order the optional EJ-23U (120 more memory channels).
- 9600 bps ready with built-in I/O jack.
- Expanded UHF TX frequencies (438-449.995 MHz).
- Channel scope.
- Cross band repeater function.

DR-605T

$512.00
Suggested List Price

HRO Discount Price $449.95



Alinco's DR-605T dual-band is a 2m / 70 cm transceiver.

- 50 watts VHF and 35 watts UHF.
- Built-in duplexer.
- Built-in CTCSS tone encoder. Decoder is optional.
- Extended Receive Range: 136-174 MHz (including AM) and 420-470 MHz.
- Channelized display.
- 9600 BPS ready.
- Cross band repeater function.
- Band, programmed, or memory scan.
- Crossband memory
- 50 memory channels per band memories plus call channel.
- Tone scan with optional EJ-24U CTCSS unit.
- Memory channel skip.
- Tone burst function (1450, 1750, 2100 Hz)

Alinco Mobile Specifications

Model	Primary Use	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out	Memories	Ant Z	Mike Z	Sensitivity	Height in	Width in	Depth in	Weight lbs
DR-140T	Mobile	2 m	13.8 VDC	10.5 A	800 MA	50 W	51	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.5	6.08	1.9
DR-150T	Mobile	2 m Trans	13.8 VDC	10 A	600 mA	50 W	100	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.6	6.2	2
DR-430T	Mobile	440 MHz	13.8 VDC	9.5 A	500 mA	35 W	20*	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.5	6.75	2.42
DR-M06T	Mobile	6 m	13.8 VDC	3.0 A	600 mA	10 W	100	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.6	4.6	2.42
DR-605T	Mobile	2m/440 MHz	13.8 VDC	11.5 A	1.2 A	50 W/35 W	50	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.6	7	
DR-610T	Mobile	2m/440 MHz	13.8 VDC	11.5 A	1.2 A	50 W/35 W	120 †	50 Ω	600 Ω	<.16 µV at 12 dB	1.6	5.6	6.5	2.45

* Expand to 100 with optional EJ-19U †Expand to 240 with optional EJ-23U

Alinco Mobile Accessories

Model	Description	DR-M06	DR-130T DR-430T DR-M06T	DR-119T	DR-140T	DR-150T	DR-1200T DR-1200TH	DR-570T	DR-590T	DR-599T DR-592T	DR600T	HRO Price
EJ-7U	Tone Squelch Unit								*	*	*	$69.95
EJ-8U	DTMF Unit								*	*	std	$47.95
EJ-19U	Memory Expansion		*									$28.95
EJ-20U	Tone Squelch Unit	*	*		*	*						$41.95
EDC-19	Mounting Kit 9'10" Cable								*	*	*	$40.95
EDC-20	Mounting Kit 16'5" Cable								*	*	*	$46.95
EMS-3	Remote Control Microphone with DTMF						*		std	std	std	$78.95
EMS-5	Remote Control Microphone with DTMF							std				$63.95
EMS-10	Remote Control Microphone with DTMF			std								$59.95
EMS-11	Remote Control Microphone with DTMF		std									$50.95
PC-15	Power Cord (15 A)			*			*	*	*	*	*	$10.95
PC-15B	Power Cord		*			*						$10.95
MB-110	Mounting Bracket with Spring			*			*					$19.95
MB-130	Mounting Bracket		*		*	*						$19.95
MB-570	Mounting Bracket without Spring							*	*	*	*	$19.95

† Microphone available only for the DR-1200T

Phone Orders West 1-800-854-6046 • Mountain / Central 1-800-444-9476 • Southeast 1-800-444-7927

VHF / UHF MOBILES

HRO Discount Prices 430T–$329.95 430TQ-$TBA

DR-430T – 440 MHz - $361.00
DR-430TQ† – 440 MHz - $363.00
Suggested List Prices

This FM mobile transceiver for 440 MHz condenses maximum performance and operating convenience into an ultra compact package. The impressive features provide maximum flexibility in FM mobile installations.

- 35 watts RF output with a HI / LO switch.
- Compact size and lightweight.
- Highly visible color LCD display.
- Four scanning modes: VFO, memory, programmed and priority.
- 20 multifunction memories are fully programmable. Each channel stores operating frequency and standard offset. Expands to 100 memories with optional EJ-19U.
- Built-in programmable encode and optional decoder allow restricted access operation.
- The standard microphone includes UP / DOWN buttons and DTMF encoder.

† TQ - Has encode and decode tone squelch board built-in.

HRO Accepts

VISA MasterCard DISCOVER

HRO Discount Prices 150T-$289.95 150TQ-$309.95

DR-150T - 2m - $315.00
DR-150TQ† - 2m - $319.00
Suggested List Prices

Engineered for user satisfaction, the 2m DR-150T features up-to-the-minute technology and up to 50 watts output.

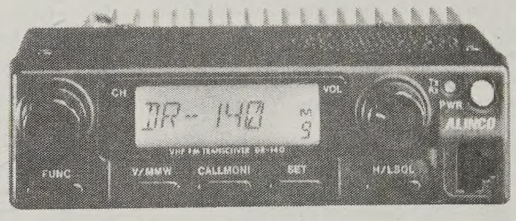
Enjoy the visual scanning capability of multiple frequencies along with simultaneous receive audio. While in the channel scope mode, activate the scan function and quickly access only those frequencies that show a strong signal. The "S-meter" squelch control has 8 adjustable settings for custom operation.

Alinco has designed a new Safety Dialer which allows the operator to use the autodialer by just pushing the up/down button on the mike.

- Receives 108-173.995 MHz and 440-449.995 MHz.
- Transmits 144-147.995 MHz.
- Two VFO's.
- 50 watts high output, 25 watts medium, and 10 watts low.
- Channel Scope (Visual Search).
- 100 memory channels, 1 call channel, and 1 program scan frequency memory.

† TQ - Has encode and decode tone squelch board built-in.

DR-140T - $288.00
DR-140TQ† - $290.00
DR-140TPKT† - $234.00
Suggested List Prices



The 2 m DR-140T is versatile and packed with the most popular features. It is simple to operate, easy to program and dependable. The clean design, large controls and display make it a joy to use.

- Alphanumeric display with up to seven characters.
- 51 memory channels storing splits and CTCSS tones.
- Cable cloning.
- Aircraft band receive with automatic shift to AM.
- Channel number display.
- Time out timer.
- Tone burst included.

HRO Discount Price DJ-140-T $259.95

† TQ - Has encode and decode tone squelch board built-in.
PKT - No microphone, no bracket, packet cable included (for packet radio only).

Alinco Handheld Specifications

Model	Type	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out **	Memories	Ant Z	Mike Z	Sensivity	Height in	Width in	Depth in	Weight lbs
DJ-G1T	Handheld	2 m	13.8 VDC	1.5 A	120 mA	5 W	80	50 Ω	2k Ω	<.15 µV at 12 dB	4.5	1.9	1.4	0.79
DJ-G5TH	Handheld	2m / 440 MHz	13.8 VDC	1.4 A	85 mA	5 W	80	50 Ω	2k Ω	<.16 µV at 12 dB	5.4	2.24	1.1	0.77
DJ-191T	Handheld	2 m	13.8 VDC	1.5 A	24 mA	1.5 - 5 W	40	50 Ω	2k Ω	<.16 µV at 12 dB	6	2.25	1.08	0.66
DJ-191T-HP	Handheld	2 m	13.8 VDC	1.5 A	24 mA	1.5 - 5 W	40	50 Ω	2k Ω	<.16 µV at 12 dB	6	2.25	1.08	0.66
DJ-S11T	Handheld	144-148 MHz	4.5 VDC	250 mA	33 mA	340 mW	20	50 Ω	2k Ω	<.15 µV at 12 dB	3.93	2.16	1.1	0.41
DJ-S41T	Handheld	425-449.995 MHz	4.5 VDC	250 mA	33 mA	340 mW	20	50 Ω	2k Ω	<.15 µV at 12 dB	3.93	2.16	1.1	0.41

† Optional upgrades to 50 or 100 memories. ** Power output is determined by choice of battery pack.

ALINCO ELECTRONICS INC.

HRO Discount Prices DJ-S41T-$129.95 DJ-S11T-$129.95

DJ-S41T

440 MHz - $149.95

Suggested List Price

NEW!

DJ-S11T

2m - $149.95

Suggested List Price

These tiny communicators cover 2 meters or 440 MHz. Operate from your car with the optional EDH-18.

- Transceive on 144-148 MHz (DJ-S11T); 425-450 MHz (DJ-S41T).
- 20 memories plus call channel will hold frequency, 50 CTCSS tones and offset.
- Less than 5" high and 2.25" wide.
- Uses 3 AA batteries or NiCad pack.
- Power out 340 mW.
- Large illuminated display.
- Antenna pivots away for storage.
- Battery save function; low battery indicator.

HRO Discount Price $239.95

DJ-G1T

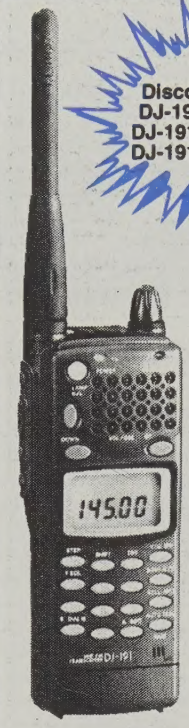
2m Transceiver
Receives 440 MHz

$289.95

Suggested List Price

The "Channel Scope" on this HT monitors 7 memories on 7 bar graphs. Active channels are indicated on the corresponding graphs.

- Receives AM aircraft.
- 80 memories; 5 with autodialer.
- CTCSS encode.
- 6 scan modes.
- Programmable delay for autodialer.
- DSQ private paging.
- Exceptional audio quality (True FM).
- Cross-band semi-duplex.
- Odd-splits on all memory channels.



HRO Discount Prices DJ-191T-$209.95 DJ-191TH-$229.95 DJ-191TD-$199.95

DJ-191T

2-Watt 2m - $235.00

DJ-191T-HP

5-Watt 2m - $258.00

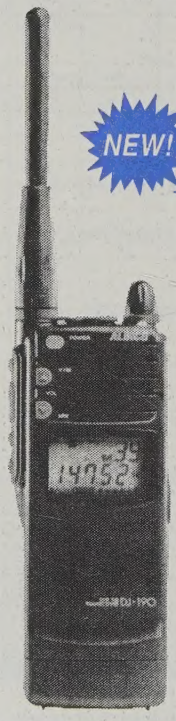
DJ-191T-TD

$216.95

Suggested List Prices

The DJ-191 has a huge display and effortless entry. Simple operation, "slim line" technology, and durability make this a choice radio.

- Wide band receiver 135-173.995 MHz.
- Includes CTCSS encoder, DTMF squelch encoder and decoder.
- Large, lighted LCD display.
- 1.5 W out with standard battery. 5 W with 9.6 VDC or optional EBP-36N battery.
- 40 memory channels plus call channel store frequency, offset, shift direction, tone information, power level, DSQ setting.
- Seven channel steps: 5, 10, 12.5, 15, 20, 25, and 30 kHz.
- 9 auto dialer memory channels with redial.
- Cloning capability.
- Automatic power off.



NEW!

HRO Discount Price DJ-190T - $199.95 DJ-190T-HP - $229.95

DJ-190T

$218.95

DJ-190TH

$264.95

Suggested List Prices

Here's the ideal hand-held for low-power applications such as portable packet and APRS beacon station. The DJ-190 is identical to the DJ-191 in every way except it does not have a DTMF keypad.

Dual-band

HRO Discount Price $379.95

DJ-G5TH

$429.00

Suggested List Price

This mini-sized, rugged rig is loaded with features.

- 5 watts out on VHF / UHF with 13.8 VDC.
- Built-in CTCSS encoder / decoder.
- Full-duplex, cross-band repeater capability.
- 80 memory channels.
- Channel scope.
- Auto dialer with up to 20 memories.
- Receives FM 108-173.995 & 420-470 MHz. Receives AM on 108-173.995 MHz.
- Airband receive.
- Band scan, programmed scan or memory scan.
- Cloning function.
- Tone burst function.
- Low battery indicator, automatic power off, and time out timer (TOT).

Family Radio

NEW!

DJ-S46T

Family Radio

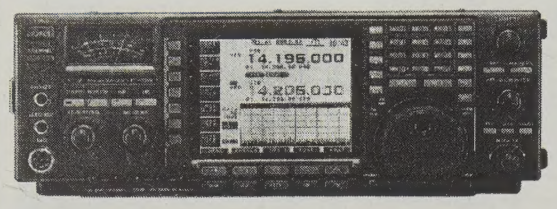
$TBA

No license required to use this Family Radio Service hand-held. It offers 14 channels with scan, page tone, 340 mW output power, 50 CTCSS tone encoder. Runs on 3 AA batteries or NiCads. Great for family outings.

DJ-S46T - This device has not been approved by the Federal Communications Commission. This device is not and may not be offered for sale, lease or sold or leased until the approvals of the FCC have been obtained.

Alinco Handheld Accessories

	DESCRIPTION	F1T	F1T-HP	G1T	162TD	162T	180T 180T-HP	191T 191T-HP	560TA	S11 S41	580T	HRO Price
EBP-10NA	Ni-Cd Battery (7.2V 700 mAh)				*	std			std			$45.95
EBP-12NA	Ni-Cd Battery (12V 700 mAh)				*	*			*			$61.95
EBP-16N	Ni-Cd Battery (7.2V 700 mAh)	std	*									$47.95
EBP-18N	Ni-Cd Battery (12V 600 mAh)	*	std									$74.95
EBP-20N	Ni-Cd Battery (7.2V 700 mAh)										std	$47.95
EBP-22N	Ni-Cd Battery (12V 700 mAh)										*	$70.95
EBP-24N	Ni-Cd Battery (7.2V 1200 mAh)						*					$78.95
EBP-26N	Ni-Cd Battery (7.2V 700 mAh)						std					$41.95
EBP-28N	Ni-Cd Battery (12V 700 mAh)						*					$68.95
EBP-30N	Ni-Cd Battery (7.2V 700 mAh)			*								$50.95
EBP-31N	Ni-Cd Battery (7.2V 1200 mAh)			*								$79.95
EBP-32N	Ni-Cd Battery (12V 700 mAh)			*								$95.95
EBP-33N	Ni-Cd Battery (4.8V 650 mAh)							*				$63.95
EBP-34N	Ni-Cd Battery (4.8V 1200 mAh)							*				$82.95
EBP-35N	Ni-Cd Battery (7.2V 900 mAh)							*				$95.95
EBP-36N	Ni-Cd Battery (9.6V 650 mAh)							*				$67.95
EBP-37N	Ni-Cd Battery (4.8V 700 mAh)							*				$34.95
EBC-6	Mobile Bracket			*			*	*		*		$22.95
EDC8B	Mobile DC power cable with filter			*				*			*	$21.95
EDC-16	Cigarette Lighter Cable/Charger				*	*			*			$12.95
EDC-21	AC Battery Charger ENP-10				*	std			std			$18.95
EDC-22	AC Battery Charger EBP-12N				*	*			*			$22.95
EDC-24	AC Battery Charger EBP-20N	std	std				std				std	$24.95
EDC-26	Cigarette Lighter Cable/Charger				*	*			*			$17.95
EDC-37	13.8 volt power cable			*				*			*	$7.95
EDC-43	Cigarette Lighter Cable										*	$8.95
EDC-45	Quick Charger	*	*		*	*	*		*		*	$99.95
EDC-49	Wall Charger						*				*	$23.95
EDC-52	Quick Charger (EBP-30N/31N/32N)			*								$109.95
EDC-55	Wall Charger (EBP-30N/31N/32N)			*								$23.95
EDC-60	Rapid Charger							*				$94.95
EDC-63	Wall Charger							*				$24.95
EDH-1	Dry Cell Battery Case				std	*			*			$14.95
EDH-5	AA Dry Cell Case	*	*									$14.95
EDH-6	Dry Cell Case										*	$19.95
EDH-11	Dry Cell Case						*					$10.95
EDH-12	DC Jack Adaptor for ext pwr						*					$10.95
EDH-14	Dry Cell Case			*								$15.95
EDH-16	Dry Cell Case							*		*		$10.95
EJ-6U	Tone Squelch Unit				*	*						$42.95
EJ-12U	Tone Squelch Unit	*	*									$51.95
EJ-14U	50 Memory Channel Unit						*					$21.95
EJ-15U	200 Memory Channel Unit						*					$29.95
EJ-16U	Tone Squelch Unit			*								$57.95
EJ-28U	CTCSS Decoder Unit							*				$42.95
EME-4	Ear/microphone w/PTT			*							*	$34.95
EME-6	Earphone			*				*			*	$11.95
EMS-2Z	Speaker Microphone				*	*			*			$44.95
EMS-8Z	Remote Control Speaker Mic	*	*	*							*	$48.95
EMS-9	Speaker Microphone			*			*	*		*		$44.95
EME-10	Headset with VOX	*	*		*	*			*		*	$69.95
EME-11	Earphone Mic with PTT	*	*								*	$52.95
EME-12	Headset w/ear hook VOX & PTT			*			*	*		*		$70.95
EME-13	Headset with VOX			*			*	*		*		$70.95
EME-15	Tie pin microphone						*					$55.95
ESC-10	Leatherette Case for EBP-10				*	*						$21.95
ESC-11	Leatherette Case for EBP-10								*			$21.95
ESC-17	Leatherette Case										*	$14.95
ESC-18	Leatherette Case EBP-24N						*					$14.95
ESC-19	Leatherette Case EBP-28N						*					$16.95
ESC-23	Soft Case (EBP-30N)			*								$21.95
ESC-24	Soft Case (EBP-31N/32N)			*			*					$10.95
ESC-28	Soft Case (EBP-37N)							*				$10.95
ESC-29	Soft Case (EBP-33N)							*				$10.95
ESC-30	Soft Case (EBP-34N/35N/36N)							*				$10.95



HRO Discount Price $2299.95

PC Ready!

IC-756

$2760.95

Suggested List Price

NEW!

Icom presents the successor to the IC-736. The IC-756 is a middle class HF rig that offers many high performance features and quality usually seen only in high class, high performance rigs. It includes most of the features of the IC-736 with a number of improvements. Most significant are a new 4.9 inch multifunction LCD display, a newly designed DSP system, twin pass band tuning (PBT) and a dual watch function for monitoring multiple frequencies.

- Receive coverage from 30 kHz to 60 MHz. Transmits on amateur HF bands and 6 meters.
- All mode operation to include USB, LSB, CW, AM and FM.
- 101 memory channels, 99 regular and 2 scan edges.
- Provides 100 watts continuous output maximum on all modes except AM (40 watts maximum). Has low power adjustable to 5 watts.
- 4.9 inch multifunction LCD displays operating frequency, mode and filter selection.
- Spectrum scope function on the display with passband selection of ±25 kHZ, ±50 kHz or ±100 kHz.
- Display shows memory or memo pad list showing frequency, mode and memory name for the 10 memory channels displayed per page.
- Switch labels are shown on the display to simplify radio operation.
- Automatic antenna tuner for HF and 6m built-in.
- Selectable AGC and RF attenuator.
- Display shows the contents of the CW memory keyer allowing quick response during CW operation.
- The new DSP design improves receive and transmit audio at the IF stage. Also provides noise reduction, automatic notch filter, PSN modulation/demodulation and selectable APT for super narrow operation.
- Twin PBT narrows the IF passband in two stages to reduce interfering signals.
- The dual watch function monitors two frequencies simultaneously.
- A high performance memory keyer has 4 memory channels, contest number auto count up and auto repeat function.
- Morse code announcement of radio functions.

PC Ready!

IC-775 / DSP

$4760.95

Suggested List Price

HRO Discount Price $3799.95

The new digital IC-775/DSP is designed especially for the serious DX'er who requires serious equipment. This radio is fun to operate but it was engineered from the ground up using high-quality components to offer performance you will find nowhere else. Icom's new DSP technology brings you unsurpassed signal quality. Control of the signals at the modulation stage produces high quality SSB transmit signals that analog methods can not compete with. Noise reduction at the demodulation stage results in crystal clear signals. This is revolutionalry DSP technology at work for the serious DX'er.

- Digital noise reduction. The DSP feature provides outstanding signal-to-noise ratio for clean receive signals.
- Digital automatic AF notch.
- Digital low-pass and high-pass filters.
- Digital ultra-narrow CW filter.
- Digital automatic audio peaking filter.
- MOS-FET finals.
- Twin passband tuning, noise blanker, and AGC.
- Direct Digital Synthesizer (DDS) for frequency stability.
- High performance general coverage receiver.
- Built-in antenna tuner.
- Built-in memory keyer and QSK function.
- Data mode for RTTY, SSTV or packet operation.

NEW!

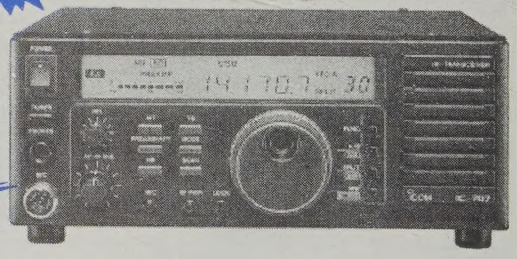
PC Ready!

IC-707

$899.95

Suggested List Price

HRO Discount Price $729.95



The IC-707's portable size provides operating versatility in a variety of locations. The front panel mounted speaker enables installation into a panel with no loss of audio quality.

- 100W output with a large cooling fan ensures output power remains stable at all times.
- SSB, CW, FM and AM modes of operation.
- Band stacking register for ease of changing channels.
- Covers all ham bands and a 500kHz to 30 MHz general coverage receiver.
- Noise blanker.
- 2 VFO system and 2 types of scan.
- 10 dB preamplifier and 20 dB attenuator.
- 32 memory channels with 25 regular, 5 split and 2 scan edges channels. Each channel stores frequency, band and mode. The 5 split memory channels allow for repeater operation.
- HM-36 hand microphone included.

HF / VHF MOBILE

HF / VHF All-Mode

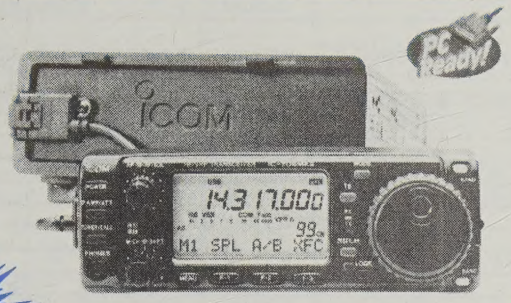
NEW!

IC-706MKII

$TBA

Suggested List Price

HRO Discount Price $TBA



PC Ready!

IC-706MKII - This device has not been approved by the Federal Communications Commission. This device is not and may not be offered for sale, lease or sold or leased until the approvals of the FCC have been obtained.

The compact IC-706MKII HF / VHF all-mode transceiver is an update of the popular IC-706. New features include an improved VHF band RF stage, 2 optional filters, and a tone squelch function (optional UT-86 required).

The IC-706MKII covers the HF bands from 160 through 10 meters as well as the popular six and two meter bands. It includes all modes over its entire frequency range, including FSK for RTTY operation, and narrow band FM on the HF bands. The receiver offers continuous coverage from 30 kHz to 2 meters with wide AM and FM broadcast reception.

Features include a 100 watt output transmitter (40 watts AM) from 160 through 6 meters, with 30 watts output on 2 meters (4 watts AM). VOX is included, as well as a speech processor, and optional narrow SSB filter. CW features include a built-in keyer, optional narrow receiver filter, full break-in (QSK), adjustable CW pitch and CW reverse functions. The PS-85 optional switching power supply is great for making the IC-706 a base station. The AT-180 optional automatic antenna tuner provides a 3:1 match and covers 6 meters.

101 memories store up to 9 alphanumeric characters each. A dot matrix display shows all of the popular menu features, frequency and multifunction meter data. A spectrum scope displays band activity at a glance.

- Compact feather weight.
- Covers the HF bands plus 6 m & 2 m.
- Detachable front panel.
- Multiple CW functions.
- I-Loop PLL circuit.
- Simple spectrum scope function.
- All-mode operation including RTTY.
- 101 alphanumeric memories.
- Plus more features and options.

IC-706

Close Out

Limited Quantities

HRO Price $1199.95

$100 Factory Rebate through June 30, 1997

Ham Radio Outlet's Home Page

http://www.hamradio.com

Check in for special offers, manufacturers coupons, and convenient ordering 24 hours a day.

SATELLITE RIG

2m / 440 MHz Base

HRO Discount Price $1699.95

IC-821H

$2040.95

Suggested List Price

PC Ready!

This 2m / 440 MHz FM base station transceiver is the perfect rig for satellite work. Satellite communications are enhanced with satellite memory and tracking functions. It is also ready for packet operation. The IC-821H is compact and competitively priced without sacrificing features.

- 45 watts output on 2 m and up to 40 watts on 440 MHz.
- All-mode operation (FM, SSB, CW).
- 160 memories.
- DDS has 1 Hz resolution.
- Compact size enables for easy installation. LCD size and space between switches are more than adequate.
- High-stability crystal.
- Optional tone scan.
- 2 VFO's for both VHF and UHF bands.
- IF shift to reduce interference.
- RIT function.
- Noise blanker and IF shift for sub band.
- Continuous adjustment transmit power.
- Full-duplex cross over operation.
- Separate main and sub S-meters.
- Packet operation is supported up to 9600 bps. DATA terminal directly connects to its modulator circuit. No modification is necessary even at 9600 bps. Modulator circuit prevents exceeding maximum deviation even with large amounts of data.
- Stereo headphone jack and two external speaker jacks.
- 50 memory channels can be user allocated to main and sub-bands.
- 2 antenna connectors for VHF and UHF.
- Attenuator prevents distortion.
- Built-in electronic keyer.
- Individual mode selection on each band.
- Re-writeable call channels for each band.
- Optional CW filters for main and sub bands.
- Microphone included.
- Satellite communication functions include reverse and normal tracking on main and sub-band VFOs, and Doppler compensation. 10 satellite frequency memories.

IC-820H

Close Out

Limited Quantities

HRO Price $1299.95

ICOM

Icom Base Station Accessories

OPTIONS		HF RADIOS										VHF/UHF		RECEIVERS					
		781	775	765	756	738	736	728	707	706	706M KII	820	821H	R9000	R72	R100	R7000	R8500	HRO Price
External AC Power Supply	PS-30					*		*	*	*	*	*	*						$499.95
	PS-85				*					*	*								$269.95
Internal AC	PS-35																		$299.95
External Speakers	SP-3	*		*		*	*	*	*			*	*	*	*	*	1	*	$129.95
	SP-7					*	*	*	*	*	*	*	*		*	*	*	*	$94.95
	SP-10									*	*								$55.95
	SP-12									*	*								$44.95
	SP-20	1	*	1		*	*	*	*			*	*	1	*	*	*	*	$269.95
	SP-21		*		*	*	*		*			*	*						$99.95
Automatic Antenna Tuners	AH-2a			*				*											$669.95
	AH-3					*	*	*	*	*	*								$549.95
	AH-4										*								TBA
	AT-160							*	*	*	*								$269.95
	AT-180									*	*								$499.95
	AT-500	*	*	*		*	*	*	*										$1,199.95
Antenna Selectors	EX-20																		$129.95
	EX-627	*	*	*		*	*	*	*	*	*								$449.95
Antennas	AH-2B			*			*	*											$269.95
	AH-610																		$169.95
Weather Proof Preamps	AG-25											*	*						$199.95
	AG-35											*	*						$169.95
	AG-1200																		$139.95
Microphones	HM-36	*	*	*		std		*											$74.95
	HM-103									*	*								$74.95
	SM-6	*		*		*	*	*	*			*	*						$119.95
	SM-8	*	*	*		*	*	*	*	*	*	*	*						$179.95
	SM-20	*	*	*	*	*	*	*	*	*	*	*	*						$219.95
Mounting Brackets	MB-5							*	*			*	*		*			*	$59.95
	MB-12																*		$59.95
	MB-18																		$59.95
	MB-19		*																$74.95
	MB-23				*														$15.99
	MB-49					*	*												$59.95
	MB-62										*								$25.95
	MB-63										*								$14.95
Handles	MB-19	3		*										3					$74.95
	MB-23							*	*			*	*		*			*	$12.99
Remote Controllers	RC-11																		$109.95
	RC-12																*		$99.95
TV Adapters	TV-R7000																*		$269.95
	TV-R7100																	*	$299.95
	TV-970																		$499.95
	TV-1275																		$329.95
CI-V System	CT-16	*	*	*		*	*	*	*	*	*			*					$149.95
	CT-17	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*	$149.95
	UX-14																		$119.95
High Stability Crystal Units	CR-64							*							*				$139.95
	CR-263																		CALL
	CR-282		*	*		*	*												$149.95
	CR-293											*	*						$329.95
	CR-338								*										CALL
	CR-502				*					*	*								$95.95
Keyer Unit	EX-243																		$99.95
FM Unit	UI-8														*				$99.95
	UI-9								*										$99.95
AM-FM Unit	UI-7							*											$99.95
Tone Encode	UT-30			*		*	*	*	*										$55.95
Tone Squelch	UT-34																		$94.95
	UT-50											*	*						$75.95
	UT-86										*								$69.95
Voice Synthesizer	EX-310																*		$85.95
	UT-36	*		*								*	*	*	*			*	$74.95
	UT-66		*																$83.95
	UT-102				*						*								$74.95

1: Style and size are matched with the equipment. 2: An optional OPC-118 CABLE is required. 3: Included. 4: An optional UX-14 is required.
5: Option unnecessary. 6: An optional OPC-137 CABLE is required. 7: for HF band only.

Phone Orders West 1-800-854-6046 • Mountain / Central 1-800-444-9476 • Southeast 1-800-444-7927

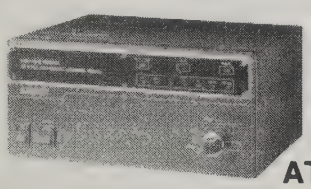
Automatic HF Antenna Tuners

AH-2

This tuner for the **IC-735** is ideal for mobile use since no manual tuning is needed. For indoor or outdoor use. 3.5 MHz to 30 MHz. System includes an antenna (AH-2b), the AH-2a tuner and controller units. The AH-2a (tuner and controller) and the AH-2b (mount and whip) may be purchased separately. **HRO Prices: AH-2a $669.95; AH-2b $299.95**

AT-160

This tuner is designed for the **IC-728 / 729 / 706**. It has a CPU with 9 memories for quick tuning. Attach it easily to the IC-728 / 729 side panel and control it from the transceiver.



AT-500

Fully automatic HF antenna tuner designed for short tune-up time. Automatic band switching (compatible with the IC-2KL linear amplifier). Matching circuit can be preset for each band. Four antenna connections. Maximum input power 500W. AC or DC. **HRO Price $1199.95**

AH-3

The AH-3 tuner operates with the **IC-725**, **IC-728**, and **IC-729** HF transceivers. Use it with the AH-2b antenna element for mobile operation. The weather-proof design has automatic digital control tuning and eight frequency memories. **HRO Price $549.95**

AT-160

This matching tuner for the **IC-706** is fully automatic and interfaces directly with the radio. The tuner covers the HF bands. **HRO Price $519.95**

Special Close Out

$269.95

Limited Quantities

Icom HF Tuners

Features	AT-160	AT-180	AH-3	AH-2a	AT-500
Input Power (Watts)					
Max	100	120	120	120	500
Min	8	8	10	10	50
Auto Tune Time (seconds)					
New Band	≤3	2 - 4	2 - 4	2 - 4	4 - 7
Same Band	≤3	≤3	<1	<1	≤3
Tuning Accuracy	VSWR<1.2:1	VSWR<1.5	VSWR<1.5:1 with AH2b	VSWR<1.5:1 with AH2b	VSWR<1.2:1
Auto Antenna Selection					
Auto Band Switching	yes	yes	yes	yes	yes
Preset Matching	CPU Controlled	CPU Controlled	CPU Controlled	CPU Controlled	yes
Power Supply	13.8 VDC	13.8 VDC	13.8 VDC	13.8 VDC	13.8 VDC 117 AC
Frequency Coverage	160, 80, 40, 30, 20, 17, 15, 12, 10 Meters	1.8-28 MHz	1.8-54 MHz	1.8-28 MHz	160, 80, 40, 30, 20, 17, 15, 12, 10 Meters
Radios	Attaches to IC-706, 728, 729	IC-706	Weather resistant 706, 725, 726, 728, 729, 737A, 738	Weather resistant 735, 751A	All Icom HF Rigs
HRO Price	$269.95	$499.95	$549.95	$669.95	$1,199.95

Icom HF Specifications

Model	Receive Freq Range	Power Supply	Current Drain Xmit	Power Output AM	FM	SSB	CW	FSK	Mike Z	Receive Circuitry	Sensitivity 1.8-30 MHz	RIT / XIT Range	Notch Atten	Audio
IC-706MKII*	30kHz-200MHz	13.8 VDC	20A	40*	100*	100*	100*	100*	600 Ω	Triple Conversion	<.16µv at 10 dB	±1.2 kHz		>2.0W
IC-756	300 kHz - 60 MHz	13.8 VDC	20A	40	100†	100†	100†		600 Ω	Triple Conversion	<.15µv at 10 dB	±1.2 kHz		>2.0 W
IC-775/DSP	100 kHz - 29.99 MHz	120 VAC	135 VA	50	200	200	200	200	600 Ω	Quadruple Conversion	<.16µv at 10 dB	±9.9 kHz	auto	>2.6 W
IC-781	100kHz - 30MHz	120VAC	760 VA	75	150	150	150	150	600 Ω	Quadruple Conversion	<.16µv at 10 dB	±9.9 kHz	45 dB	>2.6 W

† Output is continuously adjustable from 5 to 100 W * 20W SSB/CW/FM/RTTY and 4W AM for 2m. Continuously adjustable.

Icom HF Filters

Filter	Center Frequency	Bandwidth	Mode	781	775	765	756	738	737A	736	735	729	728	725	726	707	706	706 MKII	R71A	R72	R9000	List Price
FL52A	455 kHz	500 Hz	CW	std		std	*	*	*	*						*					*	$196.95
FL53A	455 kHz	250 Hz	CW	std	*	*		*	*	*						*						$196.95
FL32A	9.0106 MHz	500 Hz	CW	std		std					*								*			$101.95
FL63A	9.0106 MHz	250 Hz	CW								*											$97.95
FL100	9.0106 MHz	500 Hz	CW				*	*	*	*		*	*	*	*		*	*	*	*		$106.95
FL101	9.0106 MHz	250 Hz	CW	std	*	*	*	*	*	*		*	*	*	*		*	*		*		$106.95
FL102	9.0100 MHz	6.0 kHz	AM	std	*	*																$75.95
FL103	9.0115 MHz	2.8 kHz	SSB	*													*	*	std			$89.95
FL-222	455 kHz	1.9kHz	SSB		*		*															$199.95
FL-223	9.0115 MHz	1.9 kHz	SSB		*		*										*	*				$84.95
FL-232	9.0115 MHz	350 Hz	CW		*		*										*	*				$90.95

ICOM

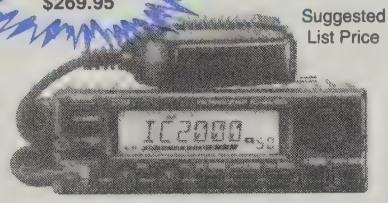
2m Mobile

HRO Discount Price $269.95

IC-2000H

$311.95

Suggested List Price



With 50 watts of output, this 2 meter rig can reach even the most distant repeaters. Lower settings of 10 and 5 watts are also available. Die-cast aluminum construction and a large heat sink help ensure that operation is stable even at *high duty cycles*. Compact size makes installation a breeze.

- 50 watts output; three output power settings.
- 1 call channel and 60 regular memories plus 6 scan edge memory channels. 2 scratch pad memories store the previous duplex or simplex transmit frequencies for instant recall.
- Alphanumeric notes of up to 6 characters may be displayed on memories instead of the frequency.
- Automatic memory channel advance to enhance the programming process.
- Optional tone squelch and pocket beep functions. Send and receive alphanumeric messages up to 6 characters (UT-85 required)
- Optional tone scan when you do not know the tone frequencies (optional UT-85 required).
- Remote control microphone and DTMF Remote Control (optional UT-101 required).

Cloning Software

Icom Cloning software allows you to preprogram memory channels with operating frequencies; set tones; set power levels; set squelch levels; set up auto-dial DTMF frequencies; and exchange operating frequencies. **Call for price quotes**

Software is available for the following radios:

- CS2710 for 2710H (use w/OPC-646)
- CSR10 for IC-RC10 (use w/OPC-478)
- CST2 for IC-T2A (use w/OPC-478)
- CST7 DOS SW for IC-T7A (use w/OPC-478)
- CSWT7 Windows SW for IC-T7A cable included
- CS32 for IC-W32A (use w/OPC-478)

2m / 70cm Mobiles

HRO Discount Price $419.95

NEW!

IC-207H

$488.95

Suggested List Price

With Icom's IC-207H 2m/440MHz dual bander you have a rig that will easily fit within your budget and in your new car. Not only is it a great mobile rig but it comes 9600 BPS packet ready. The wideband receiver covers 118-174 MHz including the airband and 440-540 MHz. It provides 45W VHF and 35W UHF output. Other features include CTCSS encoder/decoder standard, built-in duplexer, 162 memory channels, HM-98 mike and detachable front panel.

HRO Discount Price $599.95

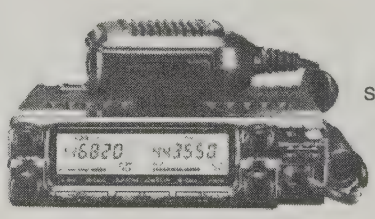
IC-2710H

$876.95

Suggested List Price

Beginners and enthusiasts alike will appreciate the easy operation of this dual-band mobile.

- Multi-function backlit remote-control microphone has two user-programmable buttons and a removable cover to protect the keypad.
- Separate front panel can be placed in a convenient location. Two optional separation cables are available. (OPC-600, 11.5 feet and OPC-601, 23 feet). Mike connects to the display panel.
- High power: 50 watts VHF, 35 watts UHF output; three RF output power settings.
- High speed programmable scan (3 pairs of scan edge and memory scan).
- 200 regular memory channels store frequency, offset, tone, duplex shift direction. Includes 6 scratch pad memories for instant recall; 2 call memories; and 12 band-edge memories. Optional cloning (PC programmable) is available.
- True dual band design with built-in duplexer, independent volume, squelch, function switches. V/V, U/U simultaneous receive.
- Built-ins: 50-frequency subaudible tone encoder. Intermod protection. 8 DTMF 16 digit memory channels. 50 CTCSS frequencies.
- Options: Pager (UT-49), code squelch and external DTMF control via sub-band. Pocket beep, tone squelch and tone scan.



IC-2350H

$616.95

Suggested List Price

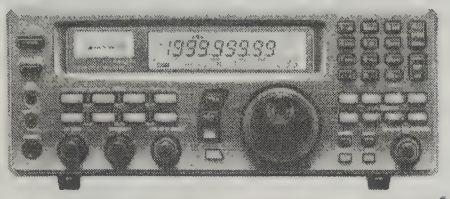
HRO Close Out Price $399.95

This dual-band FM mobile transceiver has independent tuning knobs and switches for each band for convenient operation while driving. Has 100 memory channels, 50 for each band, storing operating frequency, offset direction, offset frequency, tone squelch (optional UT-89 required) and tone frequency. Programmable tone encoder. 50 W output on 2 m; 35 W on 70 cm. Programmable band and memory scanning. Full-duplex operation for cross-band operation.

Icom VHF Specifications

Model	Freq Range	Mode	Power Supply	Current Drain Xmit	Curernt Drain Rec	Power Out	Ant Z	Mike Z	Sens	Audio Pwr	Built-in AC Supply
IC-207H	2m/440 MHz†	FM	13.8 VDC	12 A	1.0 A	45/35 W	50 Ω	600 Ω	<.18 µV	2 W	no
IC-821H	2m/440 MHz	All	13.8 VDC	11 A	2.0 A	45/35 W	50 Ω	600 Ω	<.11 µV	2 W	no
IC-2000H	2m	FM	13.8 VDC	10.5 A	1.0 A	50 W	50 Ω	600 Ω	<.13µV	2.4 W	no
IC-2350H	2m/440 MHz	FM	13.8 VDC	10.5 A	1.8 A	50/35 W	50 Ω	600 Ω	<.18 µV	2.4 W	no
IC-2710H	2m/440 MHz	FM	13.8 VDC	11.5A	1.8 A	50/35 W	50 Ω	600 Ω	<.18 µV	2.0 W	no

† Extended receiver coverage 118-174 MHz (airband included), 440-450 MHz



IC-R8500

$2400.00

Suggested List Price – Call for Quote

Serious listeners will appreciate this super wide band receiver that offers the high performance of the IC-R9000 at a much lower price. Receive from 0.1 to 2000 MHz in all modes (cellular band blocked). You can be sure that if there are any communications or broadcasts out there, you'll be able to hear then with a minimum of interference with other signals.

- All modes (USB, LSB, CW, AM, FM WFM) plus CW narrow (optional FL-52A required), AM narrow and FM narrow.
- View TV signals with optional TV-R7100. Connection to CRT monitor required (not included).
- AF shift and APF built-in.
- High receive sensitivity and built-in TCXO) for high stability included.
- Noise blanker, RF attenuator and selectable AGC functions.
- 1000 memory channels store frequency, mode and tuning step. Channels in 20 banks of 40 channels plus auto memory write of 100 channels and skip area of 100 channels. Alphanumeric names (8 characters) may be assigned.
- RS-232 interface, versatile scanning functions, various tuning steps, 3 antenna connectors, S-meter squelch, voice synthesizer (optional UT-102 required) sleep timer, REC and REC remote terminals for tape recorder control.

For Speedy Delivery, HRO Ships From the Store Nearest You

IC-R10

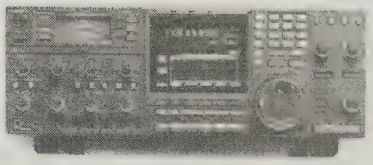
$599.95

Suggested List Price

HRO Discount Price $519.95

The IC-R10 allows you to tune in to he world where ever you go. The handheld has a wide frequency range from 0.5 MHz to 1300 MHz. (Depending on the country, some frequency ranges may be restricted.) It includes FM, WFM, AM, USB, LSB and CW modes of operation It features a real time bandscope and a new "busy catch scan."

- All mode receive including CW and SSB.
- 1000 memory channels and 8 character memory names are storable for each channel.
- Multi function LCD.
- Tunable bandpass filters provide good image and intermod rejection.
- Real-time bandscope makes it easy to find busy frequencies.
- The "busy catch scan" searches for the next busy frequency (FM only) while the receiver is detecting a signal.
- The Voice Scan Control pauses only for modulated signals.
- Full computer access is available from your home PC with the optional CS-R10.



Notice: Federal and State Government Agencies and Communications Customers Only

IC-R9000

$7508.00

Suggested List Price—Call for Quotes

This receiver has Icom's unique multifunctional CRT with spectrum scope to display information on the status of the radio as well as incoming signals.The CRT shows memory contents, dual clocks, weekly and daily timers, and frequency information of the dual VFO's. The display doubles as a spectrum scope showing a maximum of ±100 kHz. Dynamic range is 60 dB and sensitivity is approximately .63µV.

The IC-R9000 receives 100 kHz to 1999.8 MHz in modes LSB, USB, CW, AM, FM, WFM (wide-FM), FSK. Eleven separate bandpass filters use GaAs Fets for VHF and UHF bands. 1000 memories stores mode, frequency, and tuning increments. Multiple scanning functions: program, memory, selected memory, selected memory mode, priority, and voice. Direct keyboard entry; notch filter and IF shift.

Handheld Batteries / Chargers

Model	Volts	Rating mAh	Wall Charger	Desk Charger	HRO Battery Prices
BP3	8.4	270	BC-25u	BC-35	$65.95
BP-7	13.2	450	BC-16u	BC-35	$121.95
BP-8	8.4	800	BC-16u	BC-35	$119.95
BP-70	13.2	270	BC-16u	BC-35	$99.95
BP-81	7.2	110	BC-74A	BC-72	$76.95
BP-82	7.2	300	BC-74A	BC-72	$83.95
BP-83	7.2	600	BC-74A	BC-72	$90.95
BP-84	7.2	1000	BC-74A	BC-72	$99.95
BP-85	12	340	BC-74A	BC-72	$119.95
BP-101	7.2	700		BC-119*	$94.95
BP-102	7.2	1200		BC-119*	$119.95
BP-103	12	600		BC-119*	$129.95
BP-111	7.2	400	BC-74A	BC-80	$68.95
BP-112	7.2	700	BC-74A	BC-80	$79.95
BP-113	7.2	1200	BC-74A	BC-80	$95.95
BP-114	12	400	BC-74A	BC-80	$139.95
BP-121	7.2	400	BC-77A	BC-119*	$89.95
BP-122	7.2	700	BC-77A	BC-119*	$89.95
BP-123	7.2	1200	BC-77A	BC-119*	$89.95
BP-124	12	400	BC-77A	BC-119*	$89.95
BP-131	7.2	900		BC-119*	$99.95
BP-132	12	600		BC-119*	$139.95
BP-132A	12	600	BC-77A	BC-119*	$139.95
BP-157	7.2	900	BC-77A	BC-119*	$59.95
BP-160	7.2	700	BC-77A	BC-119*	$66.95
BP-171	4.8	700	BC-74A	BC-119*	$59.95
BP-172	4.8	650	BC-74A	BC-119*	$69.95
BP-173	9.6	600	BC-74A	BC-119*	$99.95
BP-180	7.2	600		BC-119*	$83.95
BP-194	9.6	700	BC-110A	BC-119*	TBA
BP-195	9.6	1050	BC-110A	BC-119*	TBA

*Adapters are required. See Adapter Table.

Icom Handhelds

Model	Frequency	Power Supply	Power Out Transmit*	Current Transmit	Drain Receive	Sensitivity	Height in(cm)	Width in(cm)	Depth in(cm)	Weight oz(g)	Sugg. List
IC-2GXAT-HP	144-148 MHz†	13.5VDC	7.0/3.0 W	1.8 A	250 mA	<.18µV/12 dB	4.9(12.2)	2.2(5.7)	1.1(2.9)	13(365)	$339.95
IC-T2A	140-150MHz†	9.6VDC	4.5/1.0W	1.8 A	25mA	<.18µV/12 dB	5.5((14)	2.4(5.8)	1.4(3.2)	14.8(420)	$227.95
IC-T7A	2m/439	7.2 VDC	3.0/1.0 W	1.2 A	600 mA	<.16µV/12 dB	4.9(12.5)	2.2(5.7)	1.4(3.5)	11(320)	$395.95
IC-T22	2m	13.5 VDC	5.0/.5 W	1.4 A	150 mA	<.16µV/12 dB	4.8(12.2)	2.3(5.8)	1.1(2.7)	10.9(310)	$279.95
IC-W32A	2m/440 #	13.5VDC	5.0/.5 W	1.6 A	210 mA	<.18µV/12 dB	5.4 (13.7)	2.2(5.7)	1.3(33)	16 (450)	$479.95

* Power with standard battery pack † Frequency coverage 138-174(receive only outside amateur bands), 440-450 MHz
# Extended receive 118-174 MHz and 400-470MHz

Dual-Band

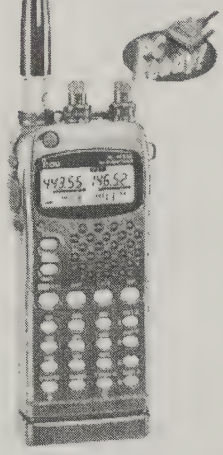
HRO Discount Price 399.95

IC-W32A

2m / 70 cm

$479.95

Suggested List Price



This upgrade to the IC-W31A has the same features plus many new ones:

- Higher power: The standard BP-173 produces a nominal 5 watts out.
- 200 EEPROM programmable memories are now available.
- No function key is required and a context sensitive "help" guide is provided.
- Analog volume controls and adjustable squelch.
- PC programmable: DOS version available now, Windows soon!
- Wire cloning from another W32A.
- Advances W/UU/VU performance.
- Allows transmitting on VHF and simultaneously receiving on UHF. Same for UHF Tx and VHF Rx.
- More CTCSS frequencies: set Rx and Tx tone separately from 50 built-in frequencies.
- Built-in weather channels, backlit keypad, 8 character alphanumeric display, extended Rx for VHF and UHF.

HRO Discount Price $299.95

IC-T7A

2m / 70 cm

$395.95

Suggested List Price

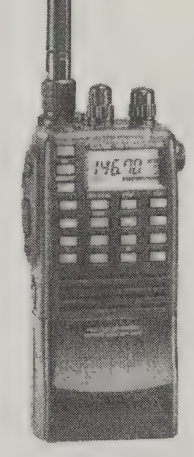
The IC-T7A fits comfortably in the palm of your hand. Carry it in your pocket or a small bag.

- Single VHF/UHF power module.
- One touch operation with no function switch required.
- 3W output with standard 7.2B BP-180 battery; 4W with optional BP-173.
- Easy to use encode/decode included at no charge..
- PC programmable with optional DOS or Windows software.
- Easy scanning display.
- Other features: auto band selection, memory allocation; 70 memories, 9 DTMF autodialing memories; adjustable DTMF transmit speed; high speed scan and scan timer; compatible with T22A, W31A and Z1A accessories; wide band receive; microphone remote control; MHz key for fast tuning; indicator showing approximate battery voltage remaining.

2-Meter Handhelds

IC-2GXAT-HP

World's only 7-Watt HT HRO Price $289.95



Beginners and seasoned veterans will like the surprisingly simple operation of this high powered 2-meter handheld.

- Output 7 W with BP-132A battery or 13.5 VDC.
- Forty repeater-oriented memory channels and one call channel.
- Programmed or memory scan with skip function.
- Tone scan function.
- Squelch monitor.
- Automatic power saver.
- Lighted display with timer.
- DTMF redial and five auto dial memories.
- Automatic repeater function.
- Channel number indication.
- Subaudible tone encoder, tone squelch and pocket beep. Optional pager and code squelch (UT-49 required)

HRO Discount Price T22 $229.95

IC-T22

Now with BP-180 Battery

Icom's convenient 2m handhelds give you high quality at a price not available before.

- Easyto use slim design.
- Superior receive audio.
- Wide-band reception.
- 40 memory channels.
- New "log-in" feature automatically memorizes transmitted frequencies.
- Runs directly from 12V for 5 W output.
- Battery pack compatible with the IC-Z1A and IC-W31A.

HRO Discount Price $199.95

IC-T2A

The IC-T2A is a simple-to-operate, single band handheld. Innovative features such as cloning capability, customizable keys and a guide function are housed in a solid body. Tone squelch and DTMF are standard.

- Encode and decoder tone squelch operation standard. Includes pocket beep and tone scan.
- Eight customizable front panel keys. Functions can be assigned through cloning or manual keypad operation.
- Has 5 DTMF memory channels each capable of storing DTMF codes up to 32 digits.
- Covers 140-150 MHz transmit and 136-174 MHz receive.
- 4.5 watts output standard.
- LCD backlight.
- 40 memory channels.
- Monitor function and auto repeater function.

BC-119 Adapters

Adapter	For Batteries	HRO Price
AD-22	BP-101, BP-102, BP-103	$46.95
AD-25	BP-131A, BP-132A, BP-157A	$63.95
AD-26	BP-121, BP-122, BP-123, BP-124	$18.95
AD-27	BP-100, BP-130	$18.95
AD-28	BP-131, BP-132	$18.95
AD-51	BP-171, BP-172, BP-173	$14.95
AD-56	BP-171, BP-172, BP-173, BP-180	$18.95
AD-81	BP-195, BP-196	$17.95

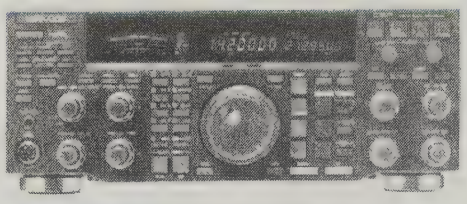
Icom Handheld Accessories

OPTIONS		2 METERS										DUAL and TRI BAND									440 MHZ						1200 MHZ	220 MHZ			HRO Price
		2SAT	2GAT	2GXAT	2SRA	T21AT	T2A	T22	2IA	02AT	P2AT	2AT	24AT	D1A	V21AT	W2A	W21AT	W31A W32A T7A	X21AT	X2A	Z1A	4SAT	4GAT	4SRA	4IA	04AT	P4AT	12GAT	3SAT	03AT	P3AT	
BATTERY PACKS	BP-3		*							*		std											*			std		*		std		$65.95
	BP-7		*							std													*			*		*		*		$121.95
	BP-8		*							*		*											*			*		*		*		$119.95
	BP-70		std							*													std			*		std		*		$99.95
	BP-81	*			*								*			*				*		*		*					*			$76.95
	BP-82	*			*								std			*				*		*		*					*			$83.95
	BP-83	*			*								*			*				*		*		*					*			$90.95
	BP-84	*			std								*			std				std		*		std					*			$99.95
	BP-85	*			*								*			I				*		*		*					*			$119.95
	BP-101													*																		$94.95
	BP-102													*																		$119.95
	BP-103													*																		$129.95
	BP-111										std																std				std	$68.95
	BP-112										*																*				*	$79.95
	BP-113										*																*				*	$95.95
	BP-114										*																*				*	$139.95
	BP-121								std																std							$89.95
	BP-122								*																*							$89.95
	BP-123								*																*							$89.95
	BP-124								*																*							$89.95
	BP-131																		*													$99.95
	BP-131A														*																	$99.95
	BP-132																		*													$139.95
	BP-132A			*											*																	$139.95
	BP-157																		*													$59.95
	BP-157A														*																	$85.95
	BP-160			*																												$66.95
	BP-171							*										*			*											$59.95
	BP-172						*	*										*			*											$69.95
	SP-173						*	*										*			*											$99.95
	BP-180						*	*										*			*											$83.95
	BP-195																															TBA
	BP-196																															TBA
BATTERY CASES	BP-4		*							*		*												*			*		*		*	$35.95
	BP-90	*			*								*			*				*		*		*					*			$35.95
	BP-100													*			*															$28.95
	BP-110										*																*				*	$39.95
	BP-120								*																	*						$39.95
	BP-130													*					*													$28.95
	BP-130A			*											*																	$28.95
	BP-159					*																										$28.95
	BP-170							*										*			*											$28.95
	BP-194						*																									TBA
	CM-12		*							*		*												*			*		*		*	$45.95
CABLES	CP-1		1							1		2												1			1		1		1	$26.95
	CP-11		3							*		2												3			*		3		*	$40.95
	CP-12	*					*				*		*					*			*	*					*		*		*	$36.95
	CP-13			*	*									*	*	*	*		*						*							$36.95
	CP-13L				*				*							*				*					*	*						$40.95
	OPC-254	*					*				*		*					*			*	*					*		*		*	$14.95
	OPC-288			*	*				*						*	*			*	*					*	*						$19.95
DC -CONV	DC-1											*																				$40.95
SPEAKER MICS	HM-46	*		*			*			*	*	*	*		*		*	*	*		*	*				*	*		*	*	*	$55.95
	HM-46L		*						*														*			*		*				$55.95
	HM-54	*		*			*			*	*	*	*		*		*	*	*		*	*				*	*		*	*	*	$83.95
	HM-55			*											*				*													$149.95
	HM-65				*									*		*	*			*				*								$76.95
	HM-70				*									*		*	*			*				*								$83.95
	HM-75						*								*		*	*	*		*											$96.95
HEADSET	HS-60				*									*		*				*				*								$119.95
	HS-51	*	*	*			*		*	*	*		4		*		*		*			*	*		*	*	*	*	*	*	*	$96.95
	HS-85																	*			*											$99.95
MOUNTING BRACKETS	MB-24		*																					*								$41.95
	MB-25		*																					*								$41.95
	MB-30	*		*	*						*		*	*	*	*	*	*	*	*	*	*	*		*		*		*		*	$41.95
INTERNAL OPTIONS	UT-40		*																				*									$83.95
	UT-49	*		*																			*							*		$74.95
	UT-50	std											*										*							*		$119.95
	UT-63														*		*		*													$119.95
	UT-70													std																		$179.95
	UT-71													*																		$109.95
	UT-72								std																	std						$109.95
	UT-86			*																												$69.95
	UT-93																				*											$83.99
	UT-94																	*														$55.95
OTHER OPTIONS	AD-12		*																					*					*			$43.95
	AD-20				*											*				*					*								$63.95
	BA-10									*																*					*		$14.95
	BA-11	*			*								*			*				*			*		*					*			$11.95
	BA-12	*																					*							*			$24.95

1 For charging BP-3, BP-5A, BP-7, BP-8, BP-70 2 Optional DC-1 is required 3 Optional AD-12 is required 4 Except for full duplex operation

KENWOOD

HF TRANSCEIVERS



HRO Discount Price $2239.95

TS-870S

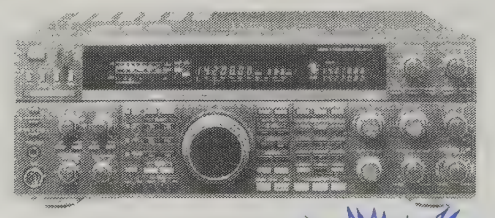
It's Revoluntionary

$3199.95

Suggested List Price

DSP at the IF stage is now a reality. Kenwood's TS-870S uses state-of-the-art DSP chips to enhance receiving to bring signals out of the noise. Complete computer operation and control of the TS-870S is possible with MS windows software included and a built-in RS-232C port.

- 100 kHz-30 MHz general coverage receiver.
- 100 watts output, 25 on AM.
- Multiple scanning functions.
- Multi-function digital filtering.
- Dual-mode noise reduction. Variable AGC. Beat canceler and automatic notch filter.
- Selectable voice equalizer. Speech processor. Voice synsthesizer option (VS-2).
- Selectable transmit equalizer.
- VOX and QSK.
- Full function CMOS Super Keyer II.
- Built-in automatic antenna tuner.
- Two selectable antenna terminals with SO-239 connectors. External receiver antenna output jack.
- Dual VFO .
- Easy-to-use menu system for quick setting of functions.
- Built-in tone encoder.
- High-quality 60-second digital recording unit option (DRU-3).



TS-950SDX

$4799.95

Suggested List Price

HRO Discount Price $3899.95

This is Kenwood's top-of-the line HF transceiver. The design includes Digital Signal Processing (DSP), high power MOSFET-type finals, simultaneous dual-receive and much more.

- 100 kHz – 30 MHz general coverage, quadruple conversion receiver
- 100 memories.
- 160–10 meter ham bands.
- High power with MRF150MP finals.
- Built-ins: automatic antenna tuner, dual digital VFO's, illuminated keyboard, memory channel / VFO control, and RIT / XIT.
- Fine tune in 1 Hz steps.
- Multiple scan functions.
- Built-in AF digital filter, multi-drive bandpass filter.
- Built-in dual noise blankers, IF filters, selectable IF filter in memory, 4-position RF attenuator, and auto-AGC.
- Full and semi break-in electronic memory keyer, variable pitch control.
- Menu-driven control of various functions.
- RM-1 remote keyboard.
- Front panel control of DSP.
- Optional DRU-2 voice memory device available for SSB contest use.
- 500Hz CW filter in sub-receiver.

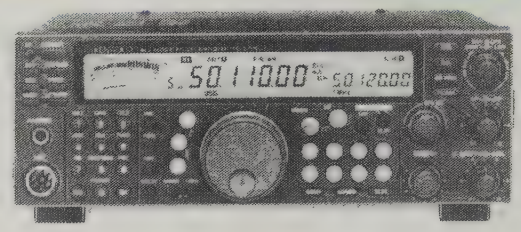
NEW!

TS-570S

$2179.95

Suggested List Price

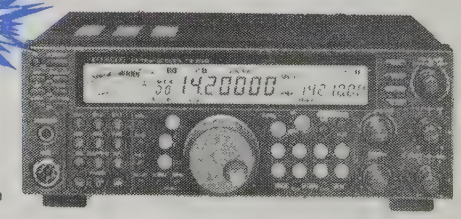
HRO Discount Price $1749.95



The TS-570S HF transceiver has all the features of the TS-570D and will offer incredible performance on 6 meters. Operation on 6M includes the spectacular DSP system built-in, 100 watts output and Preset Auto Antenna Tuner.

- 500 kHz to 60 MHz general coverage receiver.
- Transmit on the amateur bands from 160 to 10 meters plus 6 meters.
- Variable transmit output from 5 to 100 watts in 5 watt increments.
- 16-bit DSP technology delivers superb audio quality on both transmit and receive.
- Enhancement includes Noise Reduction for CW and SSB, audio equalization (voice/transmit equalizer and speech processor), slope tuning and automatic IF filter bandwidth selections.
- Voice/transmit equalizer.
- New "soft touch" keys.
- Two antenna ports.
- Automatic antenna tuner for all amateur bands. Has 18 subbands and memory for both antenna ports.
- Electronic keyer with 0 to 100 WPM and dual key inputs (one for paddle and the other for a straight key).
- Full break-in and semi-break-in CW operation.
- 10-key direct frequency entry.
- Alphanumeric sub-display provides menu, mode guidance, split frequency readout, and digital filter selection.
- Features CW auto tune enabling automatic zero-beating for CW operation.
- Quick Memory system provides 5 channels for on-the-fly frequency control.
- Dedicated packet port.
- Full scanning capabilities with variable scan speed. Scan across channels, groups of 10 channels, all except locked out channels or a frequency range between two channels.
- CW reverse mode and CW message memories.
- RS-232 com port.
- 100 memory channels.
- Optional voice synthesizer (VS-3).
- Optional YK-88C-1 (500 Hz) and YK-88CN-1 (270 Hz) CW filters. Optional YK-88SN-1 (1.8 kHz) SSB filter.

HRO Discount Price $1499.95



TS-570D

$1819.95

Suggested List Price

The TS-570 represents the new standard in performance for middle class HF rigs. Perfect for base or mobile operation. Major features include16-bit DSP AF signal processing, large LCD display, preset auto antenna tuner, 100 memory channels, 10 key direct entry, full and semi breakin CW operation, dedicated packet port, high speed 57600 bps PC control, CW auto tune, built-in electronic keyer, CW message memory,menu system, CW reverse mode.

Antenna Tuners

AT-450

The AT-450 is an option for the TS-450S and TS-690S. The installation can be easily accomplished with only a screwdriver. The tuner only works with the TS-450S and TS-690S and covers 80 –10 meters. **Suggested List Price $249.95**

AT-50

A fully automatic antenna tuner to use with the TS-50 and other 100 watt HF transceivers. Mobile or fixed operation. Can be installed remotely. **Suggested List $369.95**

Power Supplies

PS-31

The PS-31 power supply is designed especially for the TS-790A. The supply is for 110 VAC only and provides 13.8 VDC outpute rated 20 A for a 25% duty cycle,15 A at a 50% duty cycle. **Suggested List Price $219.95**

PS-40

The PS-40 switching power supply is is rated at 23 amps and similar in size to the TS-50. The supply is for 110-230 VAC. WEIGHS ONLY 4.5 POUNDS **Suggested List Price $229.95.** Call for Quote.

PS-52

The PS-52 heavy duty power supply is for the TS-850 operating all modes for the rated periods of time. The supply provides 13.8 VDC at 22.5 A. The PS-52 has a cooling fan and protection circuits. **Suggested List Price $289.95** Call for Quote

PS-53

The PS-53 heavy duty power supply is for the TS-450S/TS-690S operating all modes for the rated periods of time. The supply provides 13.8 VDC at 20.5 A. The PS-53 features a cooling fan and protection circuits. **Suggested List Price $269.95** Call for Quote

HF Accessories

Option	Model	950 SDX	940S	930S	850S	870S	570D 570S	450S 690S	440S	430S	140S 680S	50S	60S	HRO Discount Price
Microphone														
Hand	MC-43S	std	std	std	std		*	std	std	std	std	*	*	$59 95
Hand	MC-47						*					std	std	$59 95
Desk	MC-60A	*	*	*	*		*	*	*	*	*	*	*	$139.95
Desk	MC-80	*	*	*	*		*	*	*	*	*	*	*	$109 95
Desk	MC-90	*					*							$249 95
Filters														
250Hz CW	YG-455CN-1	*	*	*	*			*						$159.95
500Hz CW	YG-455C-1	std	*	*	*			*			*			$149.95
500Hz CW	YK-455C-1							*			*			$104.95
6kHz AM	YK-88A-1		*	*										$99 95
500Hz CW	YK-88C								*	*				$129.95
500Hz CW	YK-88C-1	std	*	*	*		*	*						$129.95
270Hz CW	YK-88CN								*	*				$129.95
270Hz CW	YK-88CN-1	*			*		*	*						$129 95
1.8kHz SSB	YK-88SN		*						*	*				$129.95
2.4kHz SSB	YK-88S-1							*						$129 95
1.8kHz SSB	YK-88SN-1	*			*		*	*						$129.95
2.4kHz SSB	YK-88S								*					$129.95
500Hz CW	YK-107C											*	*	$129.95
High Stability Oscillator	SO-2	std			*		*	*				*	*	$169.95
Headphones	HS-5	*	*	*	*	*	*	*	*	*	*			$79.95
	HS-6	*	*	*	*	*	*	*	*	*	*			$59.95
External Speaker	SP-41						*		*	*	*			$49.95
	SP-31				*									$99.95
	SP-50B						*		*	*	*	*	*	$55.95
	SP-23						*	*						$76.95
	SP-950	*												$139.95
Phone Patch	PC-1A	*	*	*	*		*	*	*	*	*			$129.95
Voice Synthesizer	VS-2	*			*			*						$69.95
	VS-3						*							TBA
Station Monitor	SM-230	*	*	*	*			*	*	*	*	*		$1,029.95
Antenna Tuner	AT-50											*		$339.95
	AT-300				*			*				*		$629.95
	AT-450							*						$249.95
	AT-850				*									$249 95
Mobile Mount	MB-13											*	*	$39.95
	MB-430						*	*	*	*	*			$49 95
Power Supply	PS-33							*	*	*	*	*	*	$199.95
	PS-40											*	*	$199.95
	PS-52				*									$279.95
	PS-53						*	*				*	*	$229.95
Voice Memory	DRU-2	*			*									$134.95
	DRU-3					*								$125.95
	DRU-3A						*							TBA

Kenwood Power Cables

Part Number	Radio	HRO Price
PG-2Z	TS-140, 690, 790, 450, 850, 130, 440, 570	$37.95
PG-2N	TM-2530/50/70, 721, 621A, 221/321/421, 241, 231/431/531, 251/451/551, 255/455, 261/461, 441, 201B, 401B, 541, 631, 642A, 731, 741, 941, 732A, 733A, 642A, 742A, 942A, TR-751A	$17.95
PG-2W	TH-26, 46, 28, 48, 79, 235A	$17.95
PG-2Y	TS-50S/60S	$39.95
PG-3J	TH-22AT, 26, 27, 46, 47, 79A, 235A	$37.95

Call for HRO's Amazingly Low Discount Prices

Kenwood HF Specifications

Model	Receiver Frequency Range	Power Supply		Current Drain		Power					FSK Shift	Mike Z	Receive Circuitry	Sensitivity	RIT / XIT	Notch Filter	Audio
		50/60 Hz AC	DC	Xmit	Rec	AM	FM	SSB	CW	FSK							
TS-950SDX	100 kHz - 30 MHz	120/220/240 V		700 W max	80 W	40	150	150	150	150	170 Hz	500 Ω-50 kΩ	Quadrupie Conversion	<.2µV SSB,CW,FSK	±9.99 kHz	> 45 dB	1.5 W
TS-870S	101 kHz - 30 MHz		13.8 V			25	100	100	100	100		501 Ω-50 kΩ					
TS-570D	500 kHz - 30 MHz		13.8 V					100	100	100		501 Ω-50 kΩ					
TS-570S	500 kHz-30 MHz, 6M		13.8 V					100	100	100		501 Ω-50 kΩ					
TS-50S	500 kHz - 30 MHz		13.8 V	20.5 A	1.5 A	25	100	100	100			600 Ω	@	< .25 µV	>±1.1 kHz		2 W
TS-60S	50 - 54 MHz		13.8 V	20.5 A	2.0 A	25	90	90	90			600 Ω	@	< .25 µV			2 W

* Input Power ** 6m <.16µV at 10 dB †20W Out at 6m # 50 W Out at 6m @ Double Conversion SSB, CW, AM; Triple FM

KENWOOD

Dual-Band Mobile

HRO Discount Prices TM-V7A $569.95

NEW!

TM-V7A
$739.95
Suggested List Price

Kenwood's FM dual bander TM-V7A is easy-to-operate with its cool-blue display modes. It is a cool-blue LCD display panel capable of displaying dot-matrix characters and can be switched from a positive to a negative display for maximum visibility.

- Simultaneous receive on VHF and UHF plus simultaneous receive of two frequencies on the same band.
- 50 watts output on 2 meters (144–148 MHz), 35 watts output on 70 cm (438 – 450 MHz).
- Five-in-one programmable memory. Store five different operating profiles, ready for instant recall. Each profile includes the positive or negative display mode, dimmer level, frequency range, and memory mode.
- 280 memory channels (180 when using Memory Name Function).
- Memory Name Function allows you to identify each memory channel with up to 7 alphanumeric characters.
- Multiple scan functions.
- Separate bands can be used for voice and data.
- Voice synthesizer with (optional VS-3).
- Visual scan with a pause allows you to check the frequency just above and below the frequency in use and graph the results on the LCD.
- Built-in CTCSS encoder/decoder.
- Packet ready for 1200/9600 BPS packet including a front panel connector.
- Automatic band change.
- Incremental MHz key.
- Auto repeater offset (144 MHz).
- S-meter squelch.
- Separate speaker terminals for each band (switchable).
- Supplied MC-53DM multi-function backlit mike with DTMF.
- Power on message.
- Auto power off circuit.
- Optional quick release detachable front panel (DFK-7C).

Multi- Band FM

TM-642AD
2m & 220 MHz Plus
$989.95

TM-742AD
2m & 440 MHz Plus
$959.95
Suggested List Prices

HRO Discount Prices TM642AD $759.95 TM742AD $699.95

This multi-band FM transceiver family provides dual band (144 / 440 MHz or 144 / 220 MHz) operation with the capacity to expand to triple band operation by adding optional module for 28 MHz, 50 MHz, 220 MHz, or 1200 MHz.

- Extended 2 meter receive .
- TM-742AD covers 144 MHz and 440 MHz at 50 W on 2m, 35 W on 440 MHz.
- TM-642AD covers 144 MHz and 220 MHz at 50 W/25W.
- Multiple scan modes.
- Built-in DTSS with pager and CTCSS encode.
- Backlit microphone.
- Independent receive function with display for each band. Choice of single, dual or triple band operation. Triple band cross-band operation is available.
- 100 memory channels plus a call channel for each band.
- Direct frequency input to the VFO from DTMF microphone.
- Remote front panel mount kits optional.

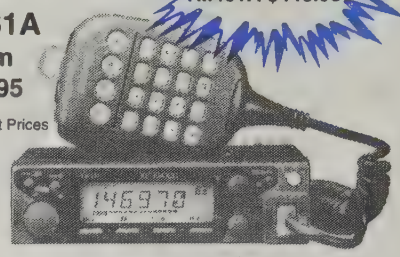
Single-Band FM Mobiles

TM-261A
2 meters
$289.95

TM-461A
70 cm
$449.95

HRO Discount Prices TM261A $279.95 TM461A $449.95

HRO Discount Prices



Mobile communications just got easier with these fully equipped, user-friendly single banders. Both have high RF output, rugged construction (MIL-STD), 60+2 (call) multi-function memory channels, memory name function with 6-digit alphanumeric display, DTSS selective calling, multi scan capability, dual menu system, multi-function microphone and wireless cloning function. They also have air-band receive, auto repeater offset (TM-261A), repeater reverse switch, built-in CTCSS tone encoder (decode optional), busy channel lockout, auto power off and time-out timer.

TM-251A	TM-331A	TM-451A
2 meters	220 MHz	70 cm
$529.95	$539.95	$559.95

Suggested List Prices Shown
Call for HRO Discount Prices

These compact single-band FM transceivers are available for 2 meters, 220 MHz, or 70 cm. The TM-251 also receives aircraft band.

- TM-251A is for 2 m with a 70 cm receiver; TM-451A is for 70 cm and includes a 2 m receiver.
- Fixed band and same band repeater functions (cross-band duplex).
- 41 multifunction memory channels store frequency (200 with optional ME-1), repeater offset, CTCSS frequency. 10 DTMF 15-digit memories.
- Encode built-in. Decode with optional TSU-8.
- Fuzzy logic tuning control.
- Automatic offsets on the TM-251.
- Multifunctional microphone allows control of the major functions of the radio right from the microphone. Mike includes a 16 key DTMF pad.
- Band scan, program scan, memory scan, call scan.
- High power output. 50W (TM-251A), 25W (TM-331A), 35W (TM-451A).
- Built-in digital recording system.
- 6-pin mini DIN connector (1200/9600 bps packet) (Not with TM-331A).
- Dual menu system, DTSS with page, and S-meter squelch.
- Auto power off and time out functions.

All Mode Mobiles

TM-255A – 2 meters
$1109.95

TM-455A – 70 cm
$1279.95

Suggested List Prices – Call for HRO Discounts

These innovative radios feature a detachable front panel for easy vehicle installation.

- 40 watts (TM-255A) and 35 watts (TM-455A) output with high / low switch.
- All mode operation.
- 1200 / 9600 bps packet ready.
- Twin tuning, dual menu.
- IF Shift (SSB and CW), pulse noise blanker.
- 101 memories and multiple scan functions.
- DDS (Direct Digital Synthesis).
- Tone alert with elapsed timer.
- Built-in CTCSS encoder. Optional TSU-8 tone decoder.
- Built-in TX temperature compensated crystal oscillator.

HF and 6 m Mobiles

TS-50S
$1294.95

HRO Discount Prices
TS50S $839.95
TS60S $949.95

TS-60S
$1209.95

Suggested List Prices

The TS-50S is for HF and the TS-60S is for 6 meters only. They feature all-mode operation (AM, CW, SSB and FM) with 100W (90W TS-60S) on CW / SSB / FM and 25 watts on AM. They have 2 VFO's and 100 memories. Compact size and weight makes them the perfect mobile rigs.

- TS-50S has a 500 kHz–30 MHz general coverage receiver (not available on TS-60S).
- DDS with "Fuzzy" control logic.
- Speech processor.
- Weighs only 6.4 pounds.
- Full/semi break-in.
- Convenient menu programming.
- All mode squelch and CTCSS encode built-in (TS-60S).
- Automatic gain control (slow / fast).
- IF shift and TF set.
- Computer control (optional).

VHF / UHF All Mode

HRO Discount Price
$1799.95

TS-790A
$2149.95

Suggested List Price

The TS-790A was designed to be the ultimate in VHF / UHF all-mode operation. Special features make it easy to use as an Oscar station.

- Operates all modes SSB, CW, FM.
- 2m and 440 MHz are standard with dual displays. Optional 1.2 GHz with UT-10.
- Receives 140-168 MHz. Modifiable for MARS / CAP transmitting.
- Dual VFO with tracking and dual watch.
- IF shift, RIT, noise blanker, and fast/slow AGC.
- Channelized tuning for normal FM repeater use.
- 59 memories with alert and call channels.
- Standard and non-standard channel splits can be stored in memories.
- Optional VS-2 voice synthesizer and optional TSU-5 decode unit.
- Requires external 13.8 VDC power supply such as the Kenwood PS-31.

Kenwood VHF Accessories

Option	Model	211A 411A	221A 321A 421A 521A	231A 331A 431A 531A	241A 441A 541A	251A 451A 551A	255A 455A	261A 461A	711A 811A	751A 851A	2530A 2550A 2570A	4100A	621A 721A	631A 731A	732A	733A	642A 742A 942A	641A 741A	941A	V7A	HRO Price
Microphone																					
Hand	MC-43S	*	*	*					*	*	*	*	*	*							$59.95
Hand	MC-44DM		*	std	std									std							$79.95
Hand	MC-45														*		*	*	*		$79.95
Hand	MC-45DM					std	std								std	std	std	std	std		$79.95
Hand	MC-48B	*	*	*		*	*		*	*	*	*	*	*	*	*	*				$89.95
Hand	MC-52DM			*	*																$79.95
Hand	MC-53.DM					*	*									*	*			*	$79.95
Desk	MC-60A	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*		*	$139.95
Desk	MC-80	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				$109.95
Modular Mic Switch	MJ-89							*									*				$69.95
Modular Plug Adapt	MJ-88							*													$32.95
External Speaker	SP-41	*	*	*	*			*		*	*	*	*	*	*			*	*	*	$49.95
	SP-50B	*	*	*	*			*		*	*	*	*	*	*			*	*	*	$55.95
Voice Synthesizer	VS-2											*									$69.95
	VS-3																			*	$39.95
Noise Filter	PG-3B	*	*	*	*			*		*	*	*	*	*	*		*	*	*	*	$29.95
Tone	TU-7									*	*	*									$54.95
	TSU-5		*																		$64.95
	KQT-8			*	*								*	*							$49.95
	TSU-7														*		*	*	*		$59.95
	TSU-8						*	*							*		*	*	*		$59.95
DTMF Unit	DTU-2				*	*															$32.95
Memory Unit	ME-1					*															$39.95
Mobile Mount	MB-11											*	*	*			*	*	*		$19.95
	MB-14																*				$49.95
	MB-201		*	*	*			*							*					*	$25.95
	MB-430								*												$49.95
Power Cable	PG-2N	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	$17.95
Data Cable	PG-5A																			*	$15.95
Extension Cables	DFK-3																*			*	$26.95
13'	DFK-4																*			*	$59.95
22'	DFK-7																*				$89.95

KENWOOD

Kenwood VHF / UHF Specifications

Training Software

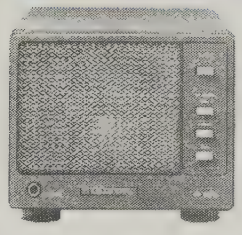
NEW!

EZ-PASS No-Code Tech Study Guide

Make a Personnel Connection provides a great method of learning about Amateur Radio. Available for both Windows 95 and DOS, the package provides test questions for both the Novice and Technician class FCC licenses. The Windows 95 version provides full graphics. The package uses the "Welcome to Amateur Radio" primer along with the most comprehensive full color Amateur Band Charts available. Included is a GOLD SEAL reward certificate redeemable to Kenwood for $10.00 when you purchase a Kenwood radio as your first amateur rig.

EZ-PASS (WIN 95) $34.95
EZ-PASS (DOS) $34.95

Speakers



SP-950

The **SP-950** base station speaker has cabinet styling to match the TS-950S and TS-950SDX. **Suggested List Price $159.95**

SP-31

To match the TS-850 styling, order the **SP-31**. **HRO Price $99.95**

SP-23

To match the TS-450S / 690S styling, order the **SP-23** speaker. **Suggested List Price $89.95**

SP-41 & SP-50B

For mobile speaker applications, Kenwood provides the **SP-41 ($49.95)** and the **SP-50B ($55.95).** The SP-41 is a small square speaker and the SP-50B is a thin rectangular speaker.

Model	Power Supply	Current Drain		Output Power	Sensitivity	RIT/XIT Range	HRO Price
	DC	Transmit	Receive				
TM-251A	13.8 V	11 A	0.6 A	50 W	<.16 µV		$299.95
TM-261A	13.8 V	11 A	0.6 A	50 W	<.16 µV		$279.95
TM-331A	13.8 V	6.5 A	0.6 A	25 W	<.16 µV		$489.95
TM-642AD**	13.8 V		1.2 A	50V/25††	<.16 µV		$759.95
TM-742AD	13.8 V	11.5 A	1.2 A	50V/35U	<.16 µV		$699.95
UT-50S**		11.5 A	1.2 A	50 W	<.16 µV		$339.95
UT-220S**		7 A	1.2 A	25 W	<.16 µV		$339.95
UT-1200**		6.5 A	1.2 A	10 W	<.16 µV		$379.95
TM-255A	13.8 V	13 A	0.9 A	40 W	<.13 µV	2.2 kHz	$879.95
TM-461A	13.8 V	10 A	0.6 A	35 W	<.16 µV		$449.95
TM-V7A							$569.95
TS-790A	13.8 V	15 A	2.5 A	*	<.22 µV †	±9.9 kHz #	$1,799.95

† SSB/CW < .16 †† 220 MHz # SSB/CW ± 1.9

* VHF FM/CW 45W; UHF FM/CW 40W; 1200 MHz FM/CW/SSB 10W; VHF SSB 35W; UHF SSB 30W

**These modules used by TM-641, TM-942, TM-741A also.

Kenwood Handheld Options

Option	Model	21BT 31BT 41BT	22AT 42AT	26AT 46AT	27AT 47AT	28A 48A 78A	25AT 45AT 75AT	77A	79A(D)	215AT 315AT 415AT	225AT	235	2600A 3600A	HRO Price
Headset	HMC-3		*	*	*		*	*	*	*	*	*		$72.95
	EMC-1								*					$43.95
	EMC-3											*		$43.95
Speaker Mic	SMC-32	*	*		*		*	*	*	*	*	*	*	$52.95
	SMC-33		*	*	*				*			*		$65.95
	SMC-34		*		*				*			*		$66.95
Prog. Tone Decoder	KQT-8						*							$49.95
	TSU-7			*		std								$59.95
	TSU-8		*											$58.95
DC/DC Converter	KVC-1							*						$33.95
	PG-2W		*		*	*						*		$17.95
Filtered Cigarette Lighter Cord	PG-3J				*			*				*		$51.95
	PG-3E						*			*	*			$49.95
Base Quick Charge	BC-15A				*	*								$79.95
	KSC-14		*						*			*		$87.95
Battery Case	BT-8				*	*								$19.95
	BT-9		*						*					$29.95
	BT-10											*		TBA
Softcase	SC-33					*								$24.95
	SC-34					*								$24.95
	SC-37		*											$24.95
	SC-39		*											$24.95
	SC-41								*					$24.95
	SC-43								*					$24.95
Wall Charger	BC-17		*											$29.95

Kenwood Handheld Specifications

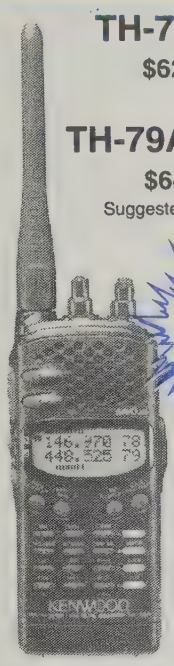
Model	Freq Range	Power Supply	Power Out†	Current Transmit	Current Receive	Sensitivity	Height in(cm)	Width in(cm)	Depth in(cm)	Weight oz(g)	HRO Discount Price
TH-22AT	144-148 MHz	6 VDC	3 W	1.3 A	45 mA	<.16 µV	4.6 (11.7)	2.2 (5.6)	.96 (2.5)	10.2 (290)	$234.95
TH-42AT	438-450 MHz	6 VDC	2.5 W	1.6 A	45 mA	<.18 µV	4.6 (11.7)	2.2 (5.6)	.96 (2.5)	9 (242)	$319.95
TH-28A	144-148 MHz	7.2 VDC	2.5 W	1.5 A	60 mA	<.18 µV	4.6 (11.5)	1.9 (4.9)	1.5 (3.8)	12 (330)	$279.95
TH-79A (D)	2m & 440MHz	6 VDC	2.7 W#	1.3 A	80 mA	<.18 µV	5.1 (12.9)	2.1 (5.6)	1 (2.5)	15 (400)	$379.95
TH-235	144-148MHz*	7.2 VDC	1.5#	0.8 A	50 mA	<.16 µV	5.8(14.7)	2.3(5.8)	1.2(3.0)	12.7(351)	$199.95

† Higher power output with optional batteries # 2 watts for 440 MHz *136-174MHz receive

Dual Band

TH-79A (D)
$629.95

TH-79A (D)-HP
$649.95
Suggested List Prices



HRO Discounts $399.95 HP–$419.95

Kenwood's TH-79A (D) Deluxe dual-band handheld offers operating ease and powerful performance in a compact, lightweight design.

- Skip-Scan feature included.
- Dot-matrix LCD and menu system. Displays frequency data and a menu system with full alphanumeric function display and settings
- 2.7 watts on 2 meters. 2.0 watts on 70 cm with the standard PB-32 NiCd battery.
- 5.0 watts on both bands with optional PB-34 NiCd battery or with 13.8 VDC operation.
- 82 non-volatile memory channels, with ID. An alphanumeric ID (max. 7 characters) can be stored with each channel. No battery backup is needed.
- Features full-duplex cross-band operation and has the ability to simultaneously receive two frequencies even when on the same band.
- Equipped with a high efficiency FET power module.
- Guide function on the LCD panel display eliminates the need to carry a manual.
- DTMF key pad with DTMF memory function.
- Dual Tone Squelch with page.

HRO Discount Price $199.95

TH-235A
2 m - $229.95
Suggested List Price

NEW!

The TH-235A 2 meter handheld is designed to be user friendly and packed with features.

- 60 non-volatile memory channels.
- Built-in CTCSS tone encoder and optional decoder (TSU-8)
- 1.5 watts output with std PB-36 battery; 5 watts with optional PB-37 battery.
- DTSS selective calling.
- Multi-scan capability: full band scan, programmable band scan, memory scan.
- DTMF memory function with 10 16-digit DTMF codes for autodial.
- 60 memory channels and built-in keypad.
- Programmable squelch.
- Wireless cloning function.
- LCD display with 2 backlighting modes.
- Repeater reverse switch.

TH-22AT
2m - $349.95

TH-42AT
70 cm - $389.95
Suggested List Prices

HRO Discounts 22AT–$234.95 42AT–$319.95

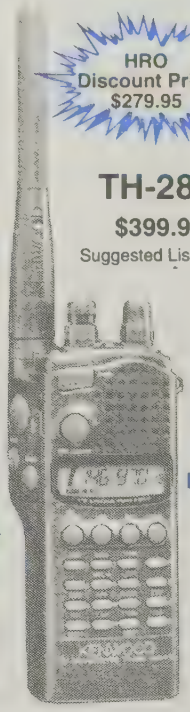
TH-22AT-HP 5 watts– $269.95

These 2m or 440 MHz transceivers are ultra compact hand helds.

- Extended receiver coverage 136 - 174 MHz on the TH-22AT.
- Five watts output with optional PB-34 battery or with 13.8 VDC power.
- 3 selectable power output levels.
- Operates from 5.0 to 16 VDC allowing easy connection to the car battery or power supply.
- 40 memories with odd offset capability in one memory.
- Selectable memory channel number display mode.
- Multiple scanning functions.
- Tone alert system with received time indication.
- Wireless cloning function.
- Built-in CTCSS tone encoder, Time Out Timer, & busy channel lock out.
- DTSS Dual Tone Squelch System with pager function built-in.
- DTMF memory for auto-dial operation, five 15-digit channels.

HRO Discount Price $279.95

TH-28A
$399.95
Suggested List Price



2m with 440 MHz Receive

The TH-28A covers two meters and includes a built-in UHF receiver: 118-173 MHz RX, 144-147.995 TX, 438-449.995 RX. It has 2.5 watts output with the standard PB-13 battery.

- Switchable dual-band (144 MHz / 440 MHz) receive capability for semi-duplex cross-band operation.
- Alpha-numeric six character display and memory paging.
- Multifunction band scanning on the 41 memory channels (expandable to 240 memories with the optional ME-1).
- Includes a high capacity NiCd battery pack, the PB-13, for 2.5 watts output.
- 5 watts power output available with the optional PB-14 or PB-17, or with 13.8 VDC.
- 15 digit auto-dialer, including, #, A, B, C, D. Auto-dialer memory for up to 10 phone numbers.
- Built-in digital clock and encode / decode unit.
- 10 minute time-out timer to extend battery life.
- Direct keyboard frequency entry.
- CAP / MARS modifiable with proper license.
- All the TH-27 / TH-78 accessories are compatible.

Handheld Battery Packs / Chargers

Battery	Voltage	Rating MAH	Desk Charger	Radio Series	HRO Price
KNB-5A	7.2	800	KSC-7/8	TH-25/26/45/46/55/75/77	$63.95
KNB-6A	7.2	1100	KSC-7/8	TH-25/26/45/46/55/75/77	$99.95
KNB-7A	12	800	KSC-7/8	TH-25/26/45/46/55/75/77	$89.95
PB-13	7.2	700	BC-15A	TH-27/47/28/48/78	$67.95
PB-17	12	700	BC-15A	TH-27/47/28/48/78	$74.95
PB-18	7.2	1100	BC-15A	TH-27/47/28/48/78	$89.95
PB-32	6	600	KSC-14	TH-22AT/42AT/79A	$39.95
PB-33	6	1200	KSC-14	TH-22AT/42AT/79A	$89.95
PB-34	9.6	600	KSC-14	TH-22AT/42AT/79A	$89.95
PB-36	7.2	950	KSC-14	TH-235A	TBA
PB-37	12	950	KSC-14	TH-235A	TBA

STANDARD®

The largest manufacturer of VHF/UHF Amateur Radio equipment in the world.

Reeeally Small HTs

C508A
2m / 70 cm Dualband

$289.95
HRO Discount Price

- 2m / 440 MHz TX.
- Receives 100-180 MHz, 340-400 MHz, and 400-480 MHz.
- Program for AM aircraft receive.
- 60 memories + 2 VFO, 2 call.
- 22-selection menu-driven screen .
- Back-lit display.
- CTCSS 39-tone encode / decode.
- Uses 2AA batteries. Power output 0.28W.
- Approx. 2.28" W, 3.35"L, .98"D.
- Weight 5.65 oz.

C108A
2 Meter Handheld

$269.95
Suggested List

- 144-147.995 MHz transmit.
- 100-174.995 MHz receive.
- Power output with standard battery 0.2W.
- Small and compact.
- CTCSS encode built-in.

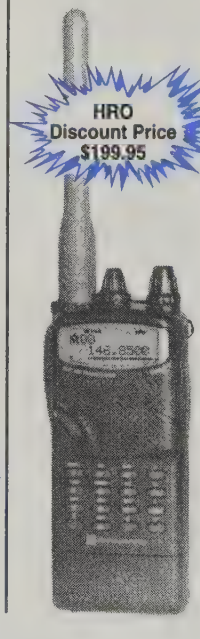
HRO Discount Price $229.95

Small HTs

C156A
2 Meter Handheld

$289.95
Suggested List

- 144-147.995 MHz transmit.
- 135-174 MHz receive.
- 100 memory channels
- Dual watch mode
- Power output with CBT156 dry cell battery case, 1.8 W.
- DTMF paging and coded squelch

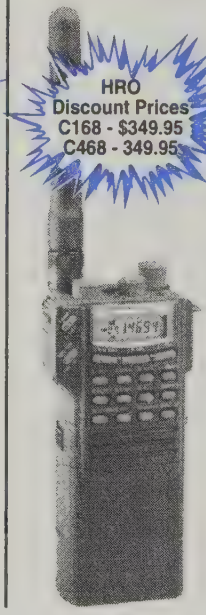


HRO Discount Price $199.95

C168A
2 Meter
C468A
440 MHz

$489.95
Suggested List

- 144-147.995 MHz (C168); 438-449.995 MHz (C468) transmit
- 115-175 MHz (C168) 400-470 MHz (C468) receive.
- C168 receives (AM) Aircraft Band.
- Power output with standard battery 2.5 W.
- 5 watts at 12 Volts.
- External DC jack for 12V input.



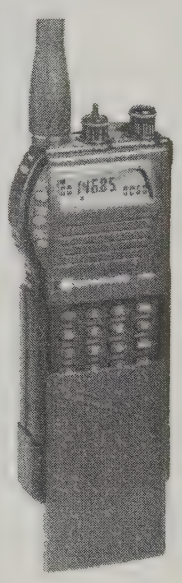
HRO Discount Prices C168 - $349.95 C468 - 349.95

Ultra-Thin

C288A
220 MHz Thin Handheld

$499.95
Suggested List

- 2.5 W with standard battery, 5 W at 9.6VDC.
- Ten 15-digit autodial memories.
- Advanced H.E.C. technology.
- Slide cover protects keyboard.



HRO Discount Price $359.95

Dual Band

C178A
2 Meters *and* 440 MHz

$459.95
Suggested List

- 144-147.995 MHz and 438-449.995 MHz transmit.
- 110-174.995 & 320-474,995 MHz receive.
- Power output with standard battery: 2 W (2 m).
- Programmable AM receive for aircraft.
- Ten DTMF 15-digit memories.
- DTMF Paging and Coded Squelch.
- 2m: 5 watts at 12VDC.
- 50 mW output on 70 cm.

HRO Discount Price $399.95

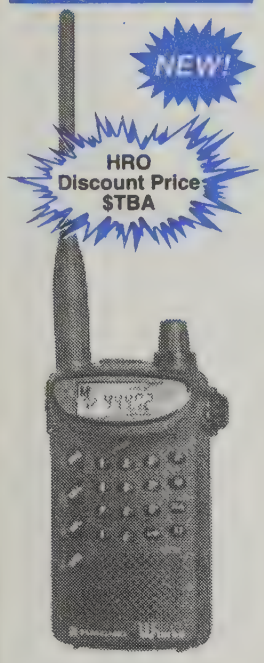
Standard Handheld Specifications

Model	Frequency	Power Supply	Power Out Transmit@	Current Transmit	Drain Receive	Sensitivity	Height in	Width in	Depth in	Weight oz
C108A	100-174.995 MHz †	3.0 VDC	.2W	.22 A		.158 µV 12 dB	3.15	2.28	0.98	4.9
C156A	135-174 MHz†	4-15 VDC	2.5 W	1.0 A	30 mA	.112 µV 12 dB	4.92	2.28	1.02	10.6
C168A	115-175 MHz †	7.2 VDC	2.5 W	700 mAh	38 mA	.158 µV 12 dB	4.9	1.8	1.2	10
C178A	110-174, 320-474.995†*	7.2 VDC	2.0 W	700 mAh	38 mA	.158 µV 12 dB	4.88	2.2	1.2	12.5
C288A	200-249 MHz †	7.2 VDC	2.5 W	700 mAh	38 mA	.158 µV 12 dB	5.8	2.3	1	10
C468A	350-474.995 MHz †	7.2 VDC	2.5	700 mAh	38 mA	.158 µV 12 dB	4.9	1.8	1.2	10
C508A	100-180,340-400,400-480 MHz †	3.0 VDC	.2W	.22 A		.112 µV 12 dB	3.35	2.28	0.98	5.65
C510A	100-180,340-400,400-480,720-950 MHz †*	4.5 VDC	1.0 W	950 mAh	33 mA	.22 µV 12 dB	4	2.28	0.98	5

† Transmit amateur bands only. Frequencies are for receive only *Am receive for aircraft @Higher power with optional batteries

VHF / UHF HANDHELDS

Dual Band



C510A

Big Brother to the C508
2 Meters/440 MHz

$TBA
Suggested List Price

- 144-147.995 & 438-449.995 MHz.
- 100-180 and 340-400, 400-480,720-950 MHz receive with Am aircraft.
- Power output with standard battery 1.0 W.
- Store 2 bands in 1 memory for cross band operations.
- 200 memories CTCSS encode/decode.

Twin-Band FM Handhelds

"Everyone loved it" *...QST – June 1991*

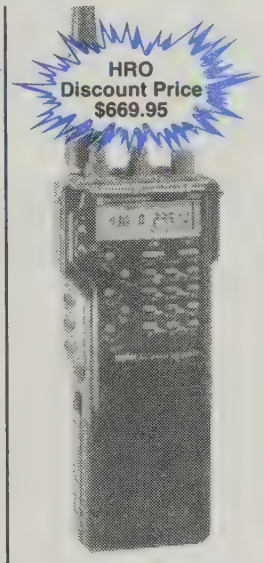
*QST even used the **C228A** as a reference to compare to other manufacturer's dual-banders!*

C228A

World's only H/T with
2 Meters/220 MHz

$695.95
Suggested List Price

- 144-147.995 & 220-224.995 MHz.
- 130-174 and 200-245 MHz receive.
- Power output with standard battery 2.5 W / 2 meters, 2.5 W / 220 MHz.
- Autodial up to 15 digits.



C628A

Deluxe H/T with
440 MHz / 1.2 GHz

$727.95
Suggested List Price

- 438-449.995 & 1240-1300 MHz.
- 300-470 & 1240-1300 MHz receive.
- Power output with standard battery 2.5 W / 440 MHz, 1 W / 1.2 GHz.

C558A

Super-Compact
2 Meters / 440 MHz

$689.95
Suggested List Price

- 144-147.995 & 438-449.995 MHz.
- 115-170 & 340-470 MHz receive.
- Receives (AM) aircraft.
- 2.5W/2m, 2.5W/440 MHz with standard battery
- Ten 15-digit autodial memories

Tri-Bander

C568A

Compact Tribander
2 m/70 cm/1.2 GHz

$689.95
Suggested List Price

- 6 twin RX and TX configurations.
- Menu driven transceiver.
- AM programmable & auto detect for aircraft.
- Power output on 2M: 5 W, 2.5 W, or 350 mW.
- 40 memories.
- MARS and CAP mods available.

	C228A / C628A	C558A / C568A
•Memory channels:	40 (20 +20 "limited") +2 call +2 vfo (non-removable memory unit).	40 (opt. 40- or 200-mem. units plug in).
•Sensitivity (ham bands):	0.158 µV for 12 dB SINAD.	0.158 µV for 12dB SINAD.
•NiCd battery pack:	700 mAh, 7.2 VDC standard! Other sizes optional.	700 mAh, 7.2VDC std. (fits 228/528/628).
•Power output (12VDC):	5 W high, 2.5 W mid, 350 mW low (1.2 GHz: 1 W high).	5 W high, 2.5 W mid, 350 mW low.
•External input voltage range:	6.0 to 16 volts DC.	6.0 to 16 V. DC w/included CMA181.
•Battery Save mode:	Also automatic power-off mode.	Also automatic power-off mode Battery save adjustable.
•Subaudible tone deck:	CTCSS encode and decode standard.	CTCSS encode / decode standard.
•Paging function:	Also DTMF coded squelch.	Also DTMF squelch, even w/CTCSS.
•Cross-band operation (full-duplex):	Push-button control of cross-band repeat mode.	P.B. control of Cross-band repeat.
•Twin-Band (not just dual-band):	Receives on 1 band while transmitting on the other.	RX 1 band while TX on other band.
•Scan function:	5 scan modes per band, each band is independent.	5 scan modes; 3 types on each band.
•Low current drain (Twin-band):	70 mA squelched receive, 32 mA battery save.	70 mA squelched RX, 25 mA batt.save.
•Even less current drain in single band mode:	36-45 mA squelched, 17-18 mA batt save.	36-45 mA sq., 17-18 mA batt.save.
•Cloning (duplicate program) over the air:	Simply transmit to another C228 / 528 / 628A.	Simply transmit to another C558A.
•Size (approximate, w/battery, w/o protrusions):	6.2" H x 2.2" W x 1.2" D.	5.1"H x 2.2"W x 1.2"D.
•Weight (approximate):	17 oz with battery and antenna.	12.5 oz with battery and antenna.
•MARS and CAP (copy of license required):	Info available from Ham Radio Outlet.	Info available from HRO.

Presenting the most advanced, highest quality radios available today!

Standard Handheld Accessories

Model	Description	C108A	C156A	C168A C468A	C158A	C188A C288A C488A	C228A C528A C628A	C178A	C508A	C510A	C558A	C568A	HRO Price
	Microphones/Speakers												
CHP111	Headset/Boom Mic (PTT)	*	*	*	*	*	*	*	*	*	*	*	$48.95
CHP150	Headset/Boom Mic (VOX AND PTT)	*	*	*	*	*	*	*	*	*	*	*	$87.95
CMP111	Speaker Microphone	*	*	*	*	*	*	*	*	*	*	*	$88.95
CMP113	Clip-on Submini Microphone with Earphone	*	*	*	*	*	*	*	*	*	*	*	$48.95
CMP115	Mini Speaker Microphone	*	*	*	*	*	*	*	*	*	*	*	$53.95
CMP123	Ear microphone								*	*		*	$63.95
CMP127	Remote miccrophone & speaker									*			CALL
	Memory												
CMU160	Extra 40-Memory Plug-In Unit (Swap in-and-out)			*							*		$26.95
CMU161	200-Memory Plug-In Unit (Swap in-and-out)			*				*			*	*	$48.95
CMU181	Extra 40-Memory Plug-In Unit (Swap in-and-out)					*							$39.95
CMU182	200-Memory Plug-In Unit (Swap in-and-out)					*							$48.95
	Batteries, etc												
CNB150	Opt. Small NiCd, 7.2VDC, 400mAh				*		*				*		$82.95
CNB151	Standard NiCd Batt, 7.2VDC, 700mAh				*		*				*		$82.95
CNB151GY	Standard NiCd Batt, 7.2VDC, 700mAh										*		$83.95
CNB152	Opt. High-Power NiCd Batt. 12VDC, 600mAh				*		*				*		$99.95
CNB153	Opt. Long-Life NiCd Batt, 7 2VDC, 1000mAh				*		*				*		$99.95
CNB155	Opt. NiCd Batt, 4.8VDC, 600mAh		*										$30.95
CNB156	Opt. NiCd Batt, 6.0VDC, 600mAh		*										$33.95
CNB157	Opt. NiCd Batt, 9.6VDC, 600mAh		*										$42.95
CNB158	Opt. NiCd Batt, 6.0VDC, 1200mAh		*										$44.95
CNB160	Opt. Small NiCd, 6VDC, 300mAh			*									$72.95
CNB161	Standard NiCd Batt, 7.2VDC, 700mAh			*									$78.95
CNB162	Opt. High-Power NiCd Batt. 12VDC, 600mAh			*									$89.95
CNB163	Opt. Long-Life NiCd Batt, 7.2VDC, 1000mAh			*									$95.95
CNB171	Standard NiCd Batt, 7.2VDC, 700mAh							*				*	$109.95
CNC172	Opt 12V 600 mAh NiCd Batt							*				*	$109.95
CNB173	NiCd Battery 7.2V 1100 mAh							*				*	$99.95
CNB181	Opt. Small NiCd, 4.8VDC, 700mAh					*							$104.95
CNB182	Opt. High-Power NiCd Batt. 9.6VDC, 600mAh					*							$104.95
CNB183	Opt. Long-Life NiCd Batt, 6.0VDC, 1100mAh					*							$97.95
CNB184	Standard NiCd Batt, 6.0VDC, 700mAh					*							$64.95
CNB401	NiCd Battery Pack	*							*				$22.95
CNB510	NiCd Battery Pack									*			CALL
CBT151	Alkaline Case, for 6 AA batteries				*		*						$22.95
CBT151GY	Alkaline Case, for 6 AA batteries										*		$22.95
CBT160	Alkaline Case, for 5 AA batteries			*									$21.95
CBT171	Battery Case (6 cells)							*				*	$21.95
CBT175	Battery Case (2 cells)							*					$21.95
CBT181	Alkaline Case, for 4 AA batteries					*							$18.95
CBT182	Alkaline Case, for 5 AA batteries					*							$28.95
CAX160	Battery Separation Cable (Remote Battery Adapter)			*									$39.95
	Chargers, etc												
CAW150	Mobile 12 V Power Cable w/Lighter Plug			*	*	*	*	*			*	*	$18.95
CAW151	12V Power Cable			*	*	*	*	*			*	*	$14.95
CAW151B	12V Power Cable		*										$18.95
CAW152	Mobile Cable, Lighter plug & Noise Filter			*	*		*	*			*	*	$30.95
CAW152B	Mobile Cable, Lighter plug & Noise Filter		*										$28.95
CCA160	Chg.Adapt.,CBT160(NiCd's)to Wall Chgr. or CMC150			*									$27.95
CMA181	Mobile 12 V Power Cable w/Lighter Plug (w/Adapter)					*							$42.95
CMA510	Mobile Adapter									*			CALL
CMC150	Mobile Charger (not for 12VDC NiCd's or 9.6VDC NiCd's)		*	*	*	*	*	*			*	*	$28.95
CSA181A	Peak-Detecting Auto-Rapid Desktop Charger			*	*	*	*	*			*	*	$109.95
CSA181AB	Peak-Detecting Auto-Rapid Desktop Charger		*										$109.95
CSA401A	NiCd Battery Charger	*											$48.95
CSA510	NiCd Battery Charger									*			CALL
CWC156A	Wall charger (CNB155/156/158)		*										$9.95
CWC151A	Wall charger (CNB157)		*										$29.95
	Cases, etc												
CAX02	Bottom Cover (pair)				*		*						$12.95
CAX03	Bottom Cover			*				*				*	$12.95
CBH160	Spring-Loaded Clip	*		*									$12.95
CLC151	Std case for CBT151 and CNB151				*								$25.95
CLC152	Large Case for CNB152 and CNB153				*								$26.95
CLC157	Large Case for CNB157 and CNB158		*										$23.95
CLC160	Small Soft Case (use with CNB160)			*									$23.95
CLC161	Med. Case (w/CNB161 or CBT160)			*									$23.95
CLC162	Large Soft Case (use with CNB162/163)			*									$28.95
CLC171	Std case for CBT171 and CNB171							*					$30.95
CLC172	Large case for CNB172 and CNB173							*					$30.95
CLC181	Small Soft Case (use with 181 or CBT-181)					*							$23.95
CLC182	Med. Case (w/CNB182/83/84 or CBT182)					*							$25.95
CLC401	Standard Soft Case	*											$16.95
CLC402	Deluxe Soft Case	*											$23.95
CLC519	Deluxe Soft Case								*				$25.95
CLC501	Standard softcase						*						$23.95
CLC510	Med. Case (w/CNB151 or CBT151)									*			CALL
CLC521	Large Soft Case (use with CNB152/153)						*						$29.95
CLC550	Med. Case (w/CNB151 or CBT151)										*		$29.95
CLC551	Large Soft Case (use with CNB152/153)										*		$31.95
CLC555GN	Pouch (Green)			*	*			*			*	*	$34.95
CLC555OR	Pouch (Orange)			*	*			*			*	*	$34.95
CLC560	Std carrying case (use with CBT171 and CNB171)											*	$27.95
CLC561	Large carrying case (use with CNB172 and CNB173)											*	$27.95
CMB111	Mobile Bracket			*	*	*	*	*			*		$22.95
CMB112	Mobile Bracket		*	*	*	*	*	*			*	*	$22.95

Phone Orders West 1-800-854-6046 • Mountain / Central 1-800-444-9476 • Southeast 1-800-444-7927

VHF / UHF MOBILES

Dual 2m / 70 cm

C5718DA

HRO Discount Price $699.95

$849.95
Suggested List Price

This is the smallest, lowest price twin-band mobile to deliver all these features. Operate the C5718DA from its optional snap-on front panel with twin frequency display (CRC5700) or mount it under a seat or even in the trunk using the optional cable (CAW571 or CAW572). The C5718DA is packet ready with high-speed, 9600 baud and interface for both VHF and UHF bands. Just connect your TNC and you are on the high speed packet network. Also operates at 1200 and 2400 baud equally well.

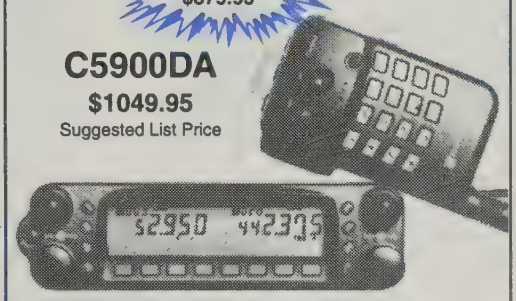
- TX 144-147.995 and 420-449.995 MHz.
- Built-in antenna duplexer.
- Dual frequency receive: 2 VHF, 2 UHF or VHF / UHF.
- Extended receive frequency range: 110-200 MHz including AM aircraft and 250-500 MHz.
- Eight scanning options.
- 40 memories (20 per band) store frequency, offsets and tones. 200 memory channels with optional CMU182.
- CTCSS encode / decode standard.
- Full duplex cross-band operation with CTCSS tones. Paging and coded squelch.
- DTMF autopatch dialing.

Triple 2m / 70 cm / 6m

HRO Discount Price $879.95

C5900DA

$1049.95
Suggested List Price

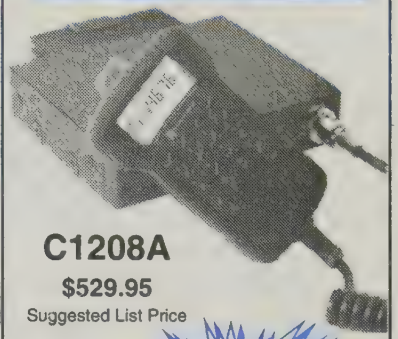


The compact, full-featured C5900DA tri-band mobile covers 2m, 70cm and 6m. It offers wireless remote control from your HT DTMF pad, 1200-9600 baud packet and cross band repeater operation.

- 80 memories (each side) store frequency, offset, CTCSS tones.
- Expandable 200 memories each side with optional CMU161.
- CTCSS Encode/Decode standard.
- Extended receive frequency range: 44 MHz to 1020 MHz (cellular blocked).
- Transmit on amateur bands. MARS and CAP modification available with permit.
- DTMF autopatch dialing, 12 memories, 15 digits.
- Eight kinds of scan include 1 MHz, entire band, program, memory, and tone.
- 7 priority hyper frequencies.
- Snap on front display or remote installation.
- Backlit keypad and display.
- Dual frequency display; Left side 6m, 2m and 70 cm. Right side 2m and 70 cm.
- Antenna triplexer built-in.
- 45 watts: 6 meter; 50 watts: 2 meter; 35 watts: 70 cm.

All Mobiles Are Packet Ready

2 Meter



C1208A

$529.95
Suggested List Price

HRO Discount Price $469.95

This 2-meter rig fits anywhere, yet puts out a full 50 watts. With all controls and the large liquid crystal display in the speaker / microphone, this rig can be mounted under the seat, behind the dash, or in the trunk (with optional extension cable). All this plus it's packet ready (up to 9600 baud) and includes wide range (100-200 and 250-520 MHz) receive.

- Frequency range: transmit 144-148; receive 100-199.995 plus 250-519.995 MHz, FM or AM, and AM aircraft.
- Select power output of 50, 10, or 3 watts.
- 100 memories store frequency, offsets and CTCSS tones.
- CTCSS encode / decode built-in.
- DTMF auto dialing, 10 memories of 15 digits each.
- 6 modes of scanning including priority and CTCSS.
- Built-in quiet cooling fan.
- Mobile mounting bracket and 9-foot power cord included.

Standard Mobile Accessories

Model	Radio	Description	HRO Discount Price
CAW562	C5608DA/C1208DA	13 ft. extinsion cable remotes radio to trunk (mike w/LCD display allows full control)	$48.95
CAW560	C5608DA/C1208DA	Dual microphone cable for second microphone (allows an additional operating position)	$45.95
CAW561	C5608DA/C1208DA	6 ft. mic extension cable	$36.95
CSK12	C5718DA/C5608DA/ C1208DA	External extension speaker (necessary if trunk mounting the radio)	$47.95
CRC5700	C5718DA	Removable front panel with twin frequency display	$224.95
CAW570	C5718DA	Split cable for microphone	$63.95
CAW571	C5718DA	2 meter microphone extension cable	$49.95
CAW572	C5718DA/C1208DA	4 meter microphone extension cable	$54.95
CAW573	C5718DA	2 meter extension cable for the front panel (CRC5700)	$27.95
CAW574	C5718DA	4 meter extension cable for the front panel (CRC5700)	$39.95
CAW575	C1208DA	Extra 12 volt power cable 15 ft	$29.95
CAW576	C1208DA	Extra 12 volt power cable 9 ft	$26.95
CAW590	C5900DA	Split cable for microphone	$55.95
CAW591	C5900DA	3 meter extension cable for LCD display	$40.95
CAW592	C5900DA	5 meter extension cable with connection for mic and speaker	$57.95
CAW593	C5900DA	8 meter extension cable with connection for mic and speaker	$74.95
CMU161	C5900DA	200 memory option module	$48.95
CMU182	C5718DA	200 memory option module	$48.95

YAESU

NEW!

HRO Discount Price $1899.95

FT-920

$2299.95

Suggested List Price

The FT-920 state-of-the-art transceiver incorporates a multitude of advanced features to give you a competitive edge in a wide variety of operating applications. It offers up to 100 watts of adjustable power on all amateur bands between 160 and 6 meters (25 watts carrier on AM) using MOSFET final amplifier transistors. Operates on SSB, CW, AM, AFSK and FSK (an FM module option is available).

The built-in high speed automatic antenna tuner may be utilized on both receive and transmit. The built-in Digital Voice Recorder allows storage and playback of incoming signals allowing storage of up to four repetitive messages of up to 16 seconds each. Electronic Memory Keyer provides storage of CW messages including incremented, imbedded contest numbers. Independent KEY jacks on front and rear panels allow connection of keyer paddles to one jack and a computer or straight key to the other.

Receiver has high performance Digital Signal Processing filters, an automatic notch filter and noise reduction. The front end includes 10 input bandpass filters, PIN diode switching and optimized RF preamplifiers. A separate receive only antenna jack is provided plus two main TX/RX jacks. It features dual VFO's, 99 regular memories, 10 split memories and the ability to assign alphanumeric labels.

Other features include digital speech processing, SSB monitor circuit, all mode squelch, VOX, the Yaesu CAT system and an extensive menu system.

HRO Discount Price $1999.95

FT-990

$2759.95

Suggested List

Yaesu's FT-990 combines the basic technical features of their top-of-the-line rigs with recent advances such as a very quiet switching mode AC power supply and Yaesu's exclusive dual digital switched capacitance filters (SCF).

- Frequency coverage: Receive 100 kHz to 30 MHz. Transmit 160m to 10m amateur bands.
- Built-in high performance antenna tuner with 39 memories.
- RF frequency shifter speech processor.
- 90 memory channels.
- Full- and semi-break-in CW.
- Dual VFO's with band stacking.
- Multimode selection on packet / RTTY.
- Variable threshold noise blanker.
- Front panel RX antenna selection.
- Optional digital voice recorder (DVS-2).

The FT-990DC is also available: a 13.8 VDC version of the FT-990 with no-power-supply or CW filter.

FT-1000D

$5459.95

Suggested List

HRO Discount Price $4099.95

The FT-1000D uses the latest digital and RF technologies. It employs extensive surface-mount components, 6 microprocessors, and five Direct Digital Synthesizers all integrated into a reliable full-featured transceiver optimized for the serious amateur.

These items are standard: BPF-1 module for cross-band dual receive; TCXO-1 high stability oscillator; XF-C 2.4 kHz SSB filter; XF-D 2.0 kHz SSB Filter; and XF-E 500 Hz CW filter. Options are the XF-F 250 Hz CW filter; XF-455MC 600 Hz sub-receiver CW filter; and the DVS-2 Digital voice recording module.

- General coverage receiver from 100 kHz to 30 MHz.
- All mode operation (SSB, CW, FSK, AM, FM, Packet). Optimized for digital communications modes.
- Built-in power supply for 110, 117, 220 & 234 VAC 50/60 Hz.
- Transmitter output is 200 watts. (50 watts AM).
- Receiver is quad-conversion with a 108 dB dynamic range.
- Special features for CW operation including CW spot, audio peak filter and variable IF bandwidth.
- Band pass filter BPF-1 module built-in on FT-1000D.
- Simultaneous dual frequency reception. Each VFO has its own flywheel-weighted tuning knob.
- 99 memories storing frequency, mode, filter selection.
- CAT system allowing the radio to be computer controlled.
- Optional digital voice recording with the DVS-2 module.

FT-1000

$4399.95

Suggested List Price

Call for Quotes

For the budget minded ham who wants a top-of-the-line radio, Yaesu offers the FT-1000. It has all the features of the FT-1000D except the BPF-1, TCXO-1, XF-C, XF-D, XF-E listed for the FT-1000D. Additional options available are the XF-F 250 Hz CW filter; XF-455MC 600 HZ CW filter and the DVS-2 Digital Voice Recording Module.

Most orders of $100 or more are shipped Free via UPS Brown Label.

FT-1000MP

The Digital Specialist

$3699.95

Suggested List Price

HRO Discount Price $2699.95

Although this HF transceiver works in all modes (SSB, CW, FSK, AM, FM, Packet), it is optimized for digital communications modes. The enhanced digital signal processing (EDSP) system provides four random-noise reduction settings, selectable bandpass filtering with adjustable low and high cut responses, and transmitted audio enhancement. Also, an automatic seeking EDSP notch filter identifies and eliminates interfering heterodynes and carriers should they appear in the passband.

Two VFO knobs allow individual adjustments to the Main and Sub VFO's to provide in-band dual receive, even on different modes and bandwidths. The "Shuttle-jog™" tuning enhancement allows quick QSY up or down the band with a slight turn of the wrist.

Direct Digital Synthesizers (DDS) provide extremely fine funing steps, thirteen of them, selectable down to 0.625 Hz per step. A full-featured contest memory keyer, provides CQ message generation along with contest numbers.

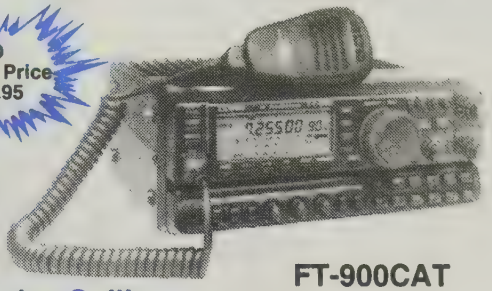
Built-ins: a lightweight switch-mode AC power supply and a high-performance high-speed automatic antenna tuner, with 39 frequency information memories.

- General coverage receiver 100 kHz to 30 MHz.
- Power output 100 watts.
- Dual in-band receive with separate S meters.
- Collins mechanical filters: 455 kHz / 2.75 kHz SSB built in. A 455 kHz / 500 Hz CW is optional.
- Wide receiver dynamic range with separate, optimized FET RF; preamps for high and low bands.
- Cat system capability with built-in RS-232C level converter.
- Transverter jack for VHF/UHF operation (display indicates actual VHF or UHF frequency).
- Selectable antenna jacks. Separate receive-only antenna jack also included.
- Custom configuration via new menu system.
- Quick memory bank (QMB) system for instant recall of important memories.

Remote Control FH-1

The **FH-1** is a remote control accessory designed to enhance the operating flexibility of your FT-10000MP. It permits remote control of the contest memory keyer, VFO/memory and main/sub VFO. It connects by a 3.5 mm miniature mono plug to the REMOTE jack on the rear panel of the FT-1000MP.

HRO Discount Price: $88.95



HRO Discount Price $1319.95

FT-900CAT

$1819.95

Suggested List Price

Includes Collins SSB Mechanical Filter

The FT-900CAT is a compact, affordable HF transceiver which features a detachable front panel that can be mounted separately from the main body. (A YSK-900 separation kit is required.)

High Performance
The FT-900CAT has up to 100 watts power on all HF amateur bands in CW, SSB and FM modes, and up to 25 watts carrier in AM. General coverage reception is possible from 100 kHz to 30 MHz.

Multi-function Display
Operational settings are displayed on a high-contrast backlit LCD. Includes a three-mode bargraph meter with "peak-hold" segments that assist in tuning stations.

Improved CW Operation
Reverse-sideband feature switches the receiver carrier point (offset) to help sidestep QRM, and eliminates the need for retuning when switching between LSB and CW. Adjustable BFO offse matches CW pitch to that used by most TNCs or multi-mode decoders. Internal electronic keyer has front-panel control of speed, weighting and mode (semi/full break-in).

Internal Antenna Tuner
The internal ATU-2 antenna tuner has 31 memories which store the most-recent settings for quick recall. The external FC-800 can be remotely installed at the antenna feed point. The antenna tuner is controlled from the front panel.

High-Tech DDS Design
Twin direct-digital synthesizers (DDS) provide pure local signals and fast TX/RX changeover for QSK CW operation. A magnetic rotary encoder with selectable 2.5, 5, or 10 Hz tuning steps results in silent,smooth tuning. Frequency accuracy and stability are assured by driving both DDSs from a single master oscillator. The optional TCXO-3 temperature-compensated crystal oscillator is also available for enhanced ±2-ppm stability for 0 to 50 degrees C.

The receiver front end has a low-noise, high performance FET RF amplifier to an active double-balanced quad FET ring mixer. The RF amplifier can be by-passed for direct-feed to the mixer (Intercept Point Optimization). For very strong signals a 12 dB attenuator can be inserted for clear copy. Interference rejection is facilitated by an IF shift and notch circuit. Install the optional XF-100S crystal filter for enhanced SSB and AM narrow-skirt selectivity.

Four microprocessors provide two independent (A/B) VFOs for each band holding frequencies and mode settings. 100 memories store information for both VFOs for a total of 220 independent sets of information. All 100 or selected memories can be scanned and tuned. 10 special memories let you limit the tuning/scanning range.

Other features include a noise blanker, all-mode squelch, AF speech processor with adjustable IF offset.

YAESU HF TRANSCEIVERS

HRO Discount Price $899.95

FT-840

$1099.95
Suggested List

The FT-840 provides top-of-the-line quality at an affordable price. Just what you would expect from Yaesu–high-tech performance and a wealth of features that will not break your budget.

The FT-840 blends high performance digital frequency synthesis with the operating convenience and affordability of its predecessor, the FT-747GX. As a first time rig, back-up, mobile, or main station transceiver, the FT-840 has the features and dependability that both beginners and seasoned operators appreciate.

Built to handle rigorous field operation, the new intense LCD display affords sharp visibility in bright sunlight. Die-cast heat sink and internal thermally switched fan keep the FT-840 running cool. Modular design circuit boards ensure operating efficiency with manufacturing excellence you would expect in higher priced radios.

For high performance, the FT-840 features a low noise front end that uses the latest in FET RF amplifier design. It has two DDSs and magnetic encoder for silent, smooth tuning and fast switching.

Twin band-stacking VFOs and automatic 10 m FM repeater offset with selectable CTCSS provide the best for 10 m repeater operation.

- General coverage receiver from 100 kHz to 30 MHz. Transmit on amateur bands 160-10m.
- Direct digital synthesis (DDS).
- FM repeater operation with automatic 10 meter repeater offset.
- 100 memory channels (independent transmit/receive per memory).
- Selectable CTCSS encode with optional FM-747.
- Twin band stacking VFO's.
- IF shift.
- CW reverse feature.
- Choice of two optional antenna tuners: FC-10 Matching External Tuner or FC-800 External Remote Tuner.

HRO Discount Price $999.95

FT-600

$1249.95
Suggested List

The FT-600 is a compact HF base station that features the straight forward, sensible layout of a commercial radio with the most-often-used features on the front panel. The radio features a full coverage receiver from 50 kHz to 30 MHz with transmit on the amateur bands from 160 to 10 meters. It excels as an easy-to-use base station or mobile radio.

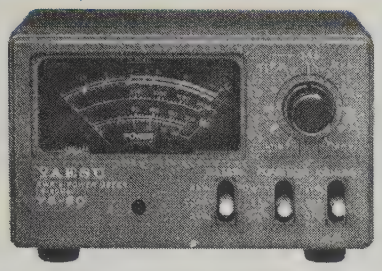
- Direct Digital Synthesis (DDS) and dual conversion receiver.
- 100 memory channels (4 banks of 25).
- Front mounted speaker with high audio output.
- Direct keypad frequency entry.
- Alphanumeric display.
- Selectable noise blanker.
- Dual watch on receive.
- Has all modes USB, LSB, CW, AFSK and AM.
- Transmitter output is 100 watts with 25 watts AM carrier.
- Has tuning steps of 10 Hz/100 Hz on CW/SSB and 100 Hz/1 kHz on AM.
- Accessories available include: FC-800 automatic antenna tuner, FIF-232C computer interface, FP-800 power supply and a complete selection of filters.

Yaesu HF Specifications

		Power Supply		Current Drain		Power Output									
Model	Frequency Range	AC	DC	Xmit	Rec	AM	FM	SSB	CW	Mike Z	Receive Circuitry	Sensitivity 1.8-30 MHz †	RIT/XIT Range	Audio Output	List Price
FT-1000D	100 kHz - 30 MHz	117/234		1050 VA	95 VA	50 W	200 W	200 W	200 W	500-600 Ω	Quad Conversion	< .25 µV	±9.975 kHz	2 W	$5,459.95
FT-1000MP	50kHz - 30 MHz		13.5 VDC	20 A	1.2 A	25 W	100 W	100 W	100 W	500-600 Ω	Double Conversion	< .25 µV	±300 Hz	1.5W	$3,599.95
FT-990	100 kHz - 30 MHz	117/234	#	470 VA	60 VA	25 W	100 W	100 W	100 W	500-600 Ω	Triple Conversion	< .20 µV	±9.975 kHz	2 W	$2,769.95
FT-920	100 kHz - 30 MHz, 48-56MHz		13.5 VDC	22 A	2.0 A	25 W	100 W*	100 W	100 W	500-600 Ω	Double Conversion	< .25 µV		1.5W	TBA
FT-900CAT	100 kHz - 30 MHz		13.8 VDC	20 A	1.2 A	25 W	100 W	100 W	100 W	500-600 Ω	Double Conversion	< .25 µV	±9.975 kHz	1.5 W	$1,819.95
FT-840	100 kHz - 30 MHz		13.8 VDC	20 A	1.2 A	25 W	100 W	100 W	100 W	500-600 Ω	Double Conversion	< .25 µV	±1.25 kHz	4 W	$1,099.95
FT-600	100 kHz - 30 MHz	117/234	13.5 VDC	550 VA	80 VA	25 W	100 W	100 W	100 W	500-600 Ω	Triple Conversion	< .25 µV		2 W	$1,249.95

The FT-990DC version operates on 13.8 VDC only. † Sensitivity measurements for 1.8-30 MHz SSB,CW *Optional module required

Meters

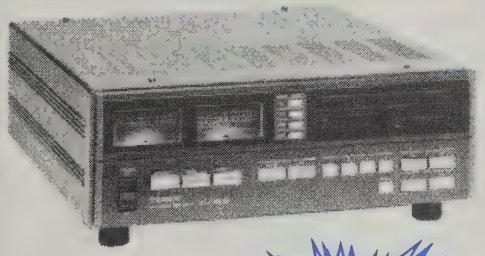


YS-60
$139.95
Suggested List

YS-500
$119.95
Suggested List

Yaesu's in-line SWR / power meters monitor both average and peak transmitter power and voltage standing wave ratio (VSWR) of antenna systems in two way radio stations from 1.6 to 60 MHz (YS-60) or 140 to 525 MHz (YS-500). These compact meters can be located almost anywhere in the station. YS-60 requires 12 VDC for PEP operation.

HF Amplifier



FL-7000
$2769.00
Suggested List

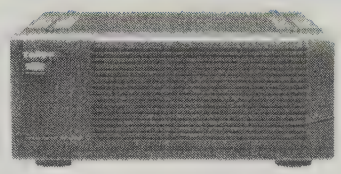
HRO Discount Price $2099.95

Designed to match the Yaesu HF radios, the FL-7000 is a CPU controlled, full break-in, all solid state linear amplifier with built-in power supply and automatic antenna tuner. Power is up to 1.2 kW input on the amateur bands.

When changing bands or retuning the radios, the amplifier automatically retunes itself to match the SWR of the antenna. Tuner settings for each band are stored in lithium-backed RAM for instant recall without the need to transmit.

Up to four different antennas can be connected and automatically selected when the optional FAS-1-4R remote antenna relay is used. The amp covers 160 -15 m and may be modified by the amateur for 10 m operation.

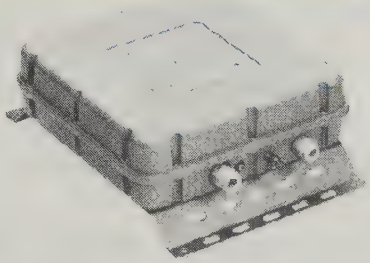
Power Supply



FP-800

The FP-800 is a matching AC power supply for the FT-900 and FT-840. It can also be used with the FT-990DC. Features include a large, front mounted speaker and internal cooling fan. The FP-800 is rated at 20 amps at 13.8 VDC. It operates on 117 or 220 volts AC input.
HRO Discount Price $299.95

Antenna Tuner



FC-800

The FC-800 is an external remote mount, automatic antenna tuner especially designed for the FT-840 transceiver. The tuner is fully automatic and operations can be controlled from the front panel of the FT-840 for easy operations. The FC-800 has 30 memory locations for quick tuning. **HRO Discount Price $489.95**

Microphones

MD-100 a8x
$139.95
Suggested List
Call for HRO Discount

This desk microphone features selectable low-cut filtering and high-emphasis active filtering that allow you to tailor the microphone response for optimum voice clarity or DX punch. It has a large push-to-talk switch and latching button, along with a large rotary up/down, slow/fast control for scanning.

The MD-100a8x is especially designed for the FT-1000MP and the FT-900, but can be used with the following Yaesu HF transceivers: FT-747GX, FT-757GXII, FT-890, FT-840, and FT-1000.

MH-1B8
$39.00
HRO Discount Price

MH-1B8 is the standard hand microphone that is provided with the FT-767GX, FT-757GXII, FT-747GX, FT-990, FT-650, FT-890, FT-1000 and the FT-736R.

This microphone has up-down buttons on the top of the unit for controlling the frequency of the radio.

Broadband HF Antenna

The YA-30 broadband dipole antenna is designed to provide optimum performance over a wide frequency range. The usual requirements for multiple antennas or an antenna tuner between the rig and antenna are eliminated by the unique broadband design. Preassembled and pretuned, the YA-30 antenna can be installed in three different ways (horizontal flat-top, inverted-V, or sloper). Specifications are shown in the chart below.

YA-30 Dipole

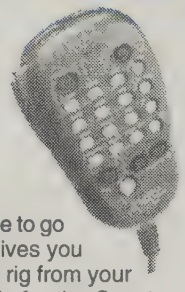
HRO Discount Price $239.95

Specifications	
Frequency Range	1.8-30 MHz (continuous coverage)
Power Rating	150 watts P.E.P
Input Impedance	50 ohms
Commercial SWR	less than 2:1 fro 1.8 - 30 MHz
Amateur SWR	less than 1.9:1 160 - 10m amateur banc
Antenna Length	83 feet
Coaxial Feedline	100 feet of RG-8X with PL-259

YAESU

Microphone

Option for FT-8500



MH-39
$79.95
HRO Discount Price

Order this compact mike to go with your FT-8500. It gives you complete control of the rig from your hand, including controls for the Spectra-Scope, menu, band select, on/off button, volume/squelch control, and user programmable buttons.

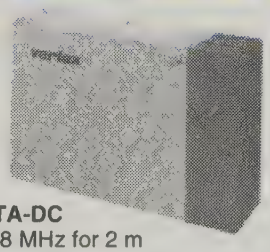
DC Noise Filter

LF-1
$26.00
Suggested List Priced

This filter, especially designed for mobile use, consists of a heavy choke coil to surpress alternator DC line noise. Install the filter between the battery and the radio. It comes with easy-to-use plug-in connectors. Model LF-1 has a continuous rating of 13A and an intermittent rating of 16A.

Repeaters

Yaesu has two synthesized repeater models for amateur use.

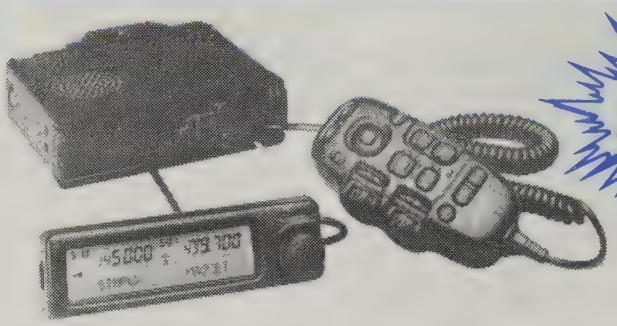


VXR-5000V / TA-DC covers 135-148 MHz for 2 m
VXR-5000U / TC-DC is for 440 MHz.

- 12 VDC at 7 amp power requirement.
- 25 watts output at 100% duty cycle.
- Built-in CTCSS encode and decode.
- PC programming with optional VX VPL-1 programming cable.
- PC programmable hang and time-out timers.
- Includes DC power cable.
- Wall mount or, with the optional mounting kit, install in a standard 19 inch rack.
- Programming is extra.

Duplexers Now Available From Yaesu
Call for HRO discount prices.

Dual Band Mobiles



HRO
Discount Prices
8500/FS-10 $599.95
8500/MH-39 $569.95

FT-8500
2 meter & 70 cm

Yaesu demonstrates their leadership in 2-way radio design with the FT-8500 and its Smart Controller™ Microphone. This deluxe, compact transceiver defines "high tech" in mobile engineering. Just four simple flicks of the Smart Controller™ Microphone joystick-type control and you command frequencies, memories and every adjustment.

The smart mike isn't the only engineering advancement. Watch the Spectra-Analyzer™ display activity above and below your current operating channel. The DC voltmeter shows your car battery voltage. Work V+V, U+U or V+U frequencies. Selectable 1200/9600 baud and rear-panel data jack for packet.

- Frequency coverage: 2m receives 110-174 MHz and transmis 144-148 MHz; 70cm receives 420-500 MHz and transmits 430-450 MHz.
- 6 character alphanumeric display.
- 3-level auto mute with mute timer.
- 9 memory DTMF autodialer.
- Output power: 2 m 50 / 10 / 5 Watts. On 70 cm 35 / 10 / 5 Watts.
- Cloning feature.
- 3 scanning modes, cross band and one way repeat.
- Choice of microphones: FC-10 or MH-39 DTMF mike.

HRO
Discount Price
FT-8000R - $499.95

FT-8100R
2 meter / 70 cm
Remote Head Capable
$TBA

FT-8000R
2 meter / 70 cm
$699.95

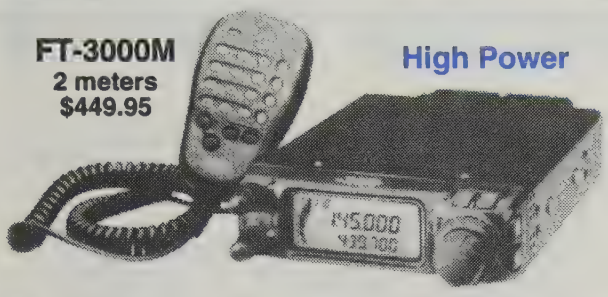
Suggested List Prices

The FT-8000R is the first mobile to provide extended receive coverage that includes, among others, public safety, marine and weather channels. This compact dual band introduces inovative features in a user friendly, easy-to-operate format. Built to last, the rig brings together the most requested dual band features and an MIL-STD 810 rating. The FT-8100R has the same features plus is remote head capable with the optional YSK-8500.

- Super-wide receiver coverage accesses 110 to 550 MHz and 750 to 1300 MHz (with cellular frequencies blocked). Includes public safety, marine, and weather channels.
- Selectable output power from 50 watts on VHF to 35 watts on UHF. Choose 10 watts or 5 watts on each band.
- 110 memory channels (55 each band) store standard repeater shifts, CTCSS data, independent transmit and receive frequencies, packet baud rate and transmit power level.
- Alternating-Band Memory Scan (ABMS) for memory selections is able to alternate quickly between VHF and UHF memory banks .
- Dual receive, duplexer, cross-band repeat, DTMF autodialer.
- Ready for 1200 or 9600 baud packet.
- Optional accessory: ADMS-2 PC programming.

FT-3000M
2 meters
$449.95

High Power



The Ft-3000M is the only 70 watt High Power mobile available with a new, true wide band-receiver. Rugged MIL-STD 810 rated with twin-fan cooling keeps the FT-3000M running cool even during longer key down periods.

- 110-180, 320-520, 800-999 MHz Receive (cellular blocked).
- 70 watts high power (50, 25, 10 watts also).
- 81 memory channels.
- Keyboard or PC programmable with optional ADMS-2C (see page 29).
- Digital battery voltage display.
- Large, alphanumeric omni-glow LCD display.
- DCS and CTCSS encode included.
- Backlit direct frequency entry DTMF mike included.
- Dual display with dual watch monitoring.
- Crossband repeat (UHF to VHF only).
- Accessories available are: FTS-27 CTCSS decode. FP-800 20 amp power sply. DVS-4 digital voice unit. SP-7 external speaker.

HRO Discount Price $329.95

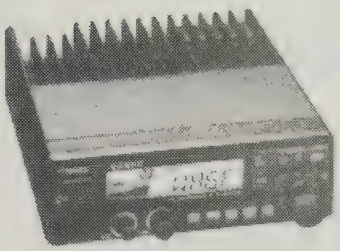
FT-2500M
2 meters
$459.95
Suggested List Price

The FT-2500M keeps all the great features of the popular FT-2400H and goes one better. The easy-to-operate front panel design has rubber coated knobs and a large amber display. The Yaesu exclusive 3-stage advance track tuning feature reduces intermodulation and front-end overload. The FT-2500M receives 140-174 MHz and transmits on 144-148 MHz. Power output is 50 / 25 / 5 watts.

Convenient features abound: The most often used controls are on the front and those you set and forget are neatly hidden behind a flip up panel. The DTFM microphone is backlit with either manual or automatic adjustment. The CTCSS encode is built-in. Both models come with automatic power off and time-out timer. There are 31 memory channels.

This powerful, rugged mobile is built as close to commercial grade performance as you get in amateur frequencies. A one-piece die-cast chassis and extra large heat sink add toughness. Yaesu brings you the only mobiles with military spec rating.

Accessories available include: FTS-17A, CTCSS decode unit; FRG-6, DTMF paging unit; SP-4, external speaker; and FP-700, power supply.



HRO Discount Price 599.95

FT-7400H
70 cm
$609.95
Suggested List Price

The FT-7400H takes full advantage of military grade mechanical and electronic construction techniques to bring you a rugged, reliable rig with up to 35 watts power output.

Some features: Backlit LCD display, knobs, and major buttons are automatically controlled by a photosensor. Less-often-needed front panel buttons have a flip-down protective cover. Thirty-one memory channels. Tuning steps are user-selectable from 5 to 50 kHz. 38-tone programmable CTCSS encoder is built-in as standard; decode unit is available as an option. Back-lit DTMF microphone is included.

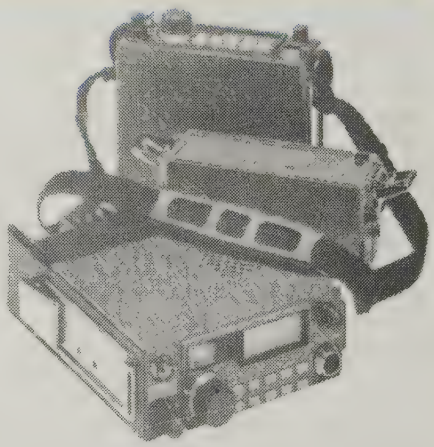
Portable All-Mode

FT-290R
2 meter
$599.95

FT-690R
6 meter
$729.95

FT-790R
70 cm
$769.95

All Prices Are HRO Discounts



The Mark II series of all-mode radios operates on 12 volts from your vehicle or, with the optional C-cell battery pack and shoulder strap, use the radio while on foot.

Includes SSB, CW, and FM; 10 memories, LCD display, memory of repeater shift and offset tuning for satellite operation. Great for camping trips.

Programming Kits

ADMS-1C
To Program Handhelds
FT-10/ 40/ 11/ 41/ 50 /51
$39.95

ADMS-2C
To Program Mobiles
FT-3000 / 8000 / 8500
$39.95

Yaesu is pleased to announce another software first! Use the ADMS (Advanced Data Management System) with Windows to program the new generation of Yaesu's radios. Save different files for each city or state you visit.

YAESU

SWL / SATELLITE RIGS

SWL Receiver

HRO Discount Price $599.95

FRG-100B

$739.95

Suggested List Price

This high-performance communications receiver provides general coverage reception in CW, SSB, AM and FM modes for 50 kHz to 30 MHz. Microprocessor control of major functions permits ease of operation and features that both new and seasoned shortwave listeners will appreciate .

Reception modes and most receiver functions are push-button selectable from the front panel. A back-lit LCD with adjustable brightness provides frequency read-out (down to 10 Hz) and important operating status.

Fifty fully-tunable memory channels store frequency, mode and filter selection, two additional memories provide band-edge information used in scanning. Selectable steps of 10 Hz, 100 Hz, 1 kHz are standard–other increments are user programmable.

Multi-function scanning (memory, band, selectable group, priority) with carrier or time-delay resume enables searching for new stations, or scanning within a known band. A special Broadcast Band selection mode permits instant selection of 16 pre-programmed international AM broadcast bands (LW, MW through 11 meters), convenient and instant QSY.

Features adjustable BFO, reverse BFO offset and selectable CW sideband. These prevent having to re-tune signals when changing modes and reduces adjacent signal interference. The optional 250 or 500 Hz crystal filter permits even further enhanced CW reception.

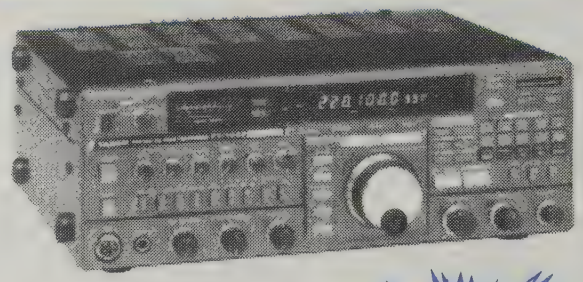
Adjustable SSB carrier offset, selectable AGC rate, noise blanker and all-mode squelch and RF attenuation controls are also provided.

Twin 12/24 hour programmable clocks with hourly time annunciator let you keep local time along with another time zone. The programmable On/Off Timer and Sleep Timer along with a remote control jack at the rear of the radio can switch auxiliary recording equipment at programmed times.

The Yaesu CAT system provides a direct link to the CPU in the FRG-100. This allows a personal computer with the Yaesu FIF CAT Interface Unit to add or customize functions such as automatic tuning and scanning as well as remote control of most receiver functions.

Options include: **FM Unit 100** FM Receiver Unit
TCXO-4 Temperature Compensated Crystal Oscillator

VHF / UHF Base



FT-736R—Multi-Band

$2449.95

Suggested List Price

HRO Discount Price $1899.95

Designed to meet the needs of the most demanding VHF and UHF operators, the FT-736R includes 144 and 430-450 MHz as standard. Optional units are available for 50 MHz, 220 MHz and 1.2 GHz.

User installable band modules provide 10 watts output on the 50 MHz and 1.2 GHz bands, and 25 watts on the other bands. This is **THE** radio of choice for satellite operation.

Operating features include IF shift and notch, noise blanker, all-mode VOX and 3-speed AGC. GaAs FET RF amplifiers in the modules above 430 MHz assure low noise and high sensitivity, and a TCXO reference oscillator meets the requirements of specialized UHF applications. One hundred general purpose memories, ten full duplex cross-band memories and five call-channel memories all store mode and receive and transmit frequencies independently.

Fourteen VFOs are provided: two general purpose plus one PMS (Programmable Memory Limit Scanning) on each band, two full duplex VFOs, and up to four clarifier memories. Each of the two full duplex VFOs can be selected so that its receive and transmit frequencies and modes can be displayed and tuned independently, or linked to tune synchronously in opposite directions for satellite operation.

Narrow FM mode reduces adjacent channel interference in crowded areas. Automatic repeater shift and a center tuning meter are useful for FM repeater operation.

A T/R switched DC supply provided for masthead preamps is activated from a front panel switch. AFSK input directly to the modulator is provided for high performance packet operation. The enhanced CAT system allows automation and customization by an external personal computer.

Power the FT-736R from 13.5 V DC or the AC mains through its internal switched mode power supply. Optionals include the TV-736 Amateur Television Modulator / Demodulator, an electronic CW keyer, and the FTS-8 Tone Squelch Unit. The MH1B8 microphone and 600 Hz CW filter are included.

Call HRO's Friendly Staff of Knowledgeable Hams

DUAL BAND HANDHELDS

FT-51R
$619.95

FT-51R / HP
$639.95

2 m / 70 cm Dual Band
Suggested List Prices

HRO
Discount Prices
2 W–$449.95
5 W–$479.95

Shown with Optional Speaker Mike

The state-of-the-art FT-51R is so easy to use you won't need an operating manual. Its exclusive, scrolling instruction menu located in the large, backlit display "window" guides you through total operation.

You'll like some of the other features too. Spectra-scope™ displays real time, continuous scanning of activity on adjacent channels in VFO mode or 8 of your favorite memories. A cloning feature duplicates favorite channels to another FT-51R. It has digital battery voltage display, five power levels, the largest backlit dual band HT keypad made, Smart Mute™, and two VFOs on both VHF and UHF. It comes in 2-watt (FT-51R) or 5-watt (FT-51R/HP) models.

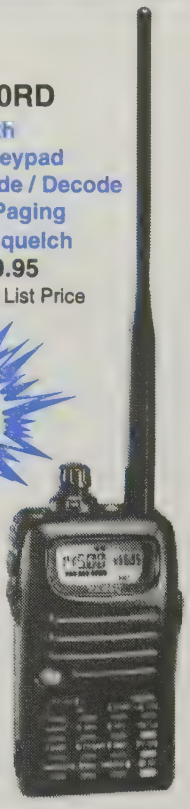
The optional MH-29A2B display mike allows you to control volume, memory access, VFO, call channel, band selection, and scanning functions.

- 5 power output levels from 20 mW to 5 watts depending on battery selection.
- Alphanumeric display; 8 characters per memory channel.
- NEW! ADMS-1 programming software available (see page 31).
- Built-in DTMF decoder displays 8 characters .
- Scanning light illuminates the display when a busy channel is found.
- 120 memories (80 with alphanumeric display) store alpha, CTCSS, offset, power level, and split information. Multiple scan modes have individual channel lock-outs.
- Built-in crossband and one-way repeat functions.

NEW!

FT-50RD
With
DTMF keypad
CTCSS Encode / Decode
DVRS, Paging
Coded Squelch
$439.95
Suggested List Price

HRO
Discount Prices
50RD–$329.95
50RDHP–$349.95



The FT-50RD features wide band receive coverage up to 999 MHz (cellular frequencies blocked) with AM, FM-N and FM-W filters. CTCSS and Digital Coded Squelch are included. The HT can be keyboard or PC programmed with the optional ADMS-1C programming system (see page 31).

Other features include 112 memory channels each with offset, CTCSS/DCS and power level; up to 5 watts output; automatic tone search,; digital DC voltage display and Auto Range Transpond System to poll other stations to see if they are in simplex range.

Yaesu Handhelds

Model	Frequency	Mode	Pwr Supply	Power Out	Current Transmit	Drain Receive	Sensitivity	Height in (cm)	Width in (cm)	Depth in (cm)	Weight oz (g)	List Price Call for HRO Discount Price
FT-10R	144-148 MHz #	FM	6.0 VDC	2.5 W*	1.2 A	200 mA	.16 µV / 12dB	3.9 (9.9)	2.3(5.8)	1.2(3.0)	11.5 (325)	CALL
FT-11R	144-148 MHz †	FM	4.8 VDC	1.5 W*	900 mA	16 mA	.15 µV / 12dB	3.9 (9.9)	2.2(5.5)	1.0(2.5)	9.5(280)	$279.95
FT-11R-HP	144-148 MHz †	FM	9.6 VDC	5 W	1.5 A @ 5W	17 mA	.15 µV / 12dB	3.9 (9.9)	2.3(5.5)	1.0(2.5)	13.9(400)	$299.95
FT-23R	144-148 MHz	FM	7.2 VDC	2 W*	900 mA	19 mA	.25 µV / 12dB	4.8 (12.2)	2.3(5.5)	1.3(3.2)	15(430)	$219.95
FT-33R	220-225 MHz	FM	12 VDC	5 W	1.3 A	19 mA	.25 µV / 12dB	4.8 (12.2)	2.3(5.5)	1.3(3.2)	15(430)	$319.95
FT-40R	430-450 MHz #		6.0 VDC	2.5 W*	1.5 A	200 mA	.16 µV / 12dB	3.9 (9.9)	2.3(5.8)	1.2(3.0)	11.5 (325)	CALL
FT-41R	440-450 MHz	FM	4.8 VDC	1.5 W*	900 mA	15 mA	.17 µV / 12dB	3.9 (9.9)	2.3(5.5)	1.0(2.5)	9.5(280)	$349.95
FT-50R	2m/70 cm	FM	6.0 VDC	2.5 W*	1.5/1.6 A	200 mA	.16 µV / 12dB	3.9 (9.9)	2.3(5.8)	1.2(3.0)	11.5 (325)	$299.95
FT-50RD	2m/70 cm	FM	6.0 VDC	2.5 W*	1.5/1.6 A	200 mA	.16 µV / 12dB	3.9 (9.9)	2.3(5.8)	1.2(3.0)	11.5 (325)	$329.95
FT-51R	2m/70 cm	FM	7.2 VDC	2.0/1.5 W*	900 mA	195 mA	.15 µV / 12dB	4.5 (12.3)	2.3 (5.5)	1.0 (2.6)	12 (330)	$449.95
FT-51R/HP	2m/70 cm	FM	4.8 VDC	2.0/1.5 W*	1.6/1.9 A	195 mA	.15 µV / 12dB	5.7 (14.6)	2.3 (5.5)	1.0 (2.6)	16.4 (450)	$479.95
FT-911	1240-1300 MHz	FM	7.2 VDC	1W	900 mA	150 mA	.2 µV / 12dB	4.8(12.2)	2.3(5.5)	1.3(3.2)	13(380)	$469.95

* Power output can be increased depending on the battery pack selected † Extended receiver range and AM aircraft capabilities # Extended Rx range

YAESU HANDHELDS

FT-10R
2 meters

FT-40R
440 MHz

Call for HRO Discount Prices

A multitude of exclusive features distinguishes the 2m FT-10R and 70 cm / 440 MHz FT-40R. Foremost is the choice of four keypads. These are the first ham handhelds with a MIL-STD 810 rating.

- 2.5 (FNB-40) or 5 (FNB-41) watts.
- Digital coded squelch encode / decode.
- Battery savers extend life.
- Compact, clamshell design, read mounted batteries.
- ARTS, Auto Range Transpond System.
- High audio output design.
- Alpha-numeric display.
- Optional PC programming.
- Dual watch.
- High speed scanning.
- Direct FM improves voice and packet performance.
- Deluxe models have 99 memories and automatic tone search.

HRO Discount Prices
23R–$219.95
33R–$319.95

FT-23R
2 meters
$309.95

FT-33R
220 MHz
$339.95

Suggested List Prices

Yaesu's original compact handhelds are still available. They offer the budget-minded amateur an attractive hand-held. Both models have LCD display with S meter.

- Up to five watts output with optional FNB-12S.
- Multiple scanning options.
- 10 memories with 7 storing odd splits.
- Aluminum alloy case with water resistant seals.
- Optional: CTCSS encode / decode (FTS-12) and DTMF pad (FTT-4).
- Auto battery saver circuit.

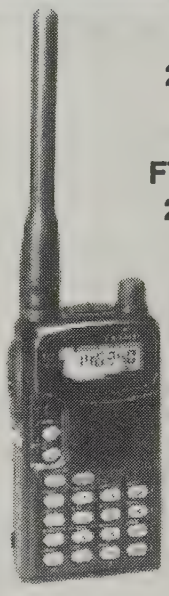
HRO Discount Price
$469.95

FT911
1.2 GHz

$569.95
Suggested List Price

This 1.2 GHz ultra-compact full-featured handheld offers features found previously only in larger units.

- 49 memories and 2 VFO's.
- Multiple scanning options.
- Uses the same battery packs as the FT-23 series. The FNB-17 is the standard pack.
- Rubber gasket seals offer protection.
- Standard CTCSS encode / decode included.
- Backlit keyboard and large LCD display.
- Automatic frequency control.
- DTMF encode pad with 10 auto-dial memories and direct key pad entry.
- Automatic power off system.
- VOX operation with optional YH-2 headset.



FT-11R
2 meters
$279.95

FT-11R-HP
2 meters
$299.95

FT-41R
70 cm
$349.95

HRO Discount Prices

Yaesu's handhelds are easy to operate. The new FT-11R-HP is a high-power, 5 watt version of this compact handheld.

- New compact battery design– 4.8 volts produces 1.5 watts output.
- Up/down volume/squelch controls are back-lit.
- Wide receive coverage on FF11: 100-180 MHz, AM aircraft (110-136 MHz).
- 6 character alphanumeric display.
- MOSFET power module and TX/RX battery savers.
- 5 watts output with 9.6 VDC (optional battery required).
- Large full-sized back-lit DTMF keypad.
- 150 memory channels.
- Built-in DTMF paging/coded squelch.

FT-10R 2m HT Models

Model	Keypad	Channels	Digital Voice Recorder	Battery Pack	List Price Call for HRO Discount Price
FT-10R/40B-A06	6	30	no	FNB-40	$289.95
FT-10R/41B-A06	6	30	no	FNB-41	$299.95
FT-10R/40B-A16	16	30	no	FNB-40	$299.95
FT-10R/41B-A16	16	30	no	FNB-41	$369.95
FT-10R/40B-A16D	16	99	no	FNB-41	$369.95
FT-10R/41B-A16D	16	99	no	FNB-41	$379.95
FT-10R/40B-A16S	16	99	yes	FNB-40	$389.95
FT-10R/41B-A16S	16	99	yes	FNB-41	$399.95

Yaesu Handheld Batteries and Chargers

Battery	Voltage VDC	Rating mAh	Wall Charger	Desk Charger	Radio Series	HRO Price Battery Only
FNB-2	10.8	425	NC-9B		FT-208/708	$49.95
FNB-4A	12	500	NC-18	NC-50	FT-727/109/209/709	$64.95
FNB-12S	12	600	NC-18	NC-50	FT-23/33/73/411/470	$71.95
FNB-14	7.2	1000	NC-34	NC-50	FT-23/33/73/411/470	$59.95
FNB-17	7.2	600	NC-28	NC-50	FT-23/33/73/411/470	$52.95
FNB-25	7.2	600	NC-28B	NC-50	FT-26/76/415/416/ 530/815/816	$39.95
FNB-26	7.2	1000	NC-34B	NC-50	FT-26/76/415/416/ 530/815/816	$55.95
FNB-27	12	600	NC-18B	NC-50	FT-26/76/415/416/ 530/815/816	$62.95
FNB-31	4.8	600		NC-50	FT-11/41/51	$55.95
FNB-33	4.8	1000		NC-50	FT-11/41/51	$75.95
FNB-38	9.6	600		NC-50	FT-11/41/51	$75.95
FNB-40	6	650	NC-60	NC-50	FT-10R/40R	$48.95
FNB-41	9.6	600	NC-60	NC-50	FT-10R/40R	$58.95
FNB-42	9.6	1100	NC-60	NC-50	FT-10R/40R	$62.95

Yaesu Handheld Accessories

Accessory	Model	10R 40R 50 R	11 41	51R	23R 33R 73R	26 76	209RH	103R 203R 703R	411 811 911	415 815	416 816	470	530	HRO Price
Headset/Boom Mike	YH-2				*	*	*	*	*	*	*	*	*	$30.95
VOX Headset	VC-22		*											$62.95
VOX Headset	VC-23	*												$62.95
Speaker/Mike	MH-12		*		*	*	*	*	*	*	*	*	*	$45.95
Speaker/Mike	MH-32		*		*	*	*	*	*	*	*	*	*	$30.95
Speaker/Mike	MH-34A2B	*												$30.95
Speaker/Mike Lapel	MH-19		*		*	*	*	*	*	*	*	*	*	$30.95
Speaker/Mike w/Display	MH-29			*									*	$99.95
Ear Piece Mike	MH-37A2B	*												$30.95
Tone Squelch	FTS-6						*							$35.95
Tone squelch	FTS-12				*									$61.95
Tone Squelch	FTS-17A					*			std	std	std	std	std	$47.95
CTCSS Decode	FTS-26											*		$47.95
DC/DC adapter	PA-6				*				*			*		$30.95
DC/DC adapter	PA-10A		*	*										$82.95
DC/DC adapter	EDC-5B	*				*				*	*		*	$26.95
Wall Charger 117 VAC	NC-9B						*	*						$15.95
Wall Charger 117 VAC	NC-18B				*	*	std	*	*	*	*	*	*	$14.95
Wall Charger 117 VAC	NC-28B				*	*			std	std	std	std	std	$14.95
Wall Charger 110 VAC	NC-34B					*								$14.95
Wall Charger 117 VAC	NC-60B	*												$16.95
Wall Charger 220 VAC	NC-9C						*	*						$17.95
Wall Charger 220 VAC	NC-18C				*		*	*	*	*	*	*	*	$18.95
Wall Charger 220 VAC	NC-28C				*	*			*	*	*	*		$26.95
Wall Charger 220 VAC	NC-34C				*	*			*	*	*	*	*	$22.95
Mobile Charger	CD-2			*										$99.95
Quick charger	NC-50	*	*	*	*	*			*	*	*	*	*	$99.95
Battery 600 mAh 12V	FNB-12S				*				*			*		$71.95
Battery 1000 mAh 7.2V	FNB-14				*				*			*		$59.95
Battery 600 mAh 7.2 V	FNB-17				std				std			std		$52.95
Battery 600 mAh 7.2 V	FNB-25					std				std	std		std	$39.95
Battery 1000 mAh 7.2 V	FNB-26					*				*	*		*	$55.95
Battery 600 mAh 12 V	FNB-27					*				*	*		*	$62.95
Battery 600 mAh 4.8 V	FNB-31		*	*										$55.95
Battery 1000 mAh 4.8 V	FNB-33		*	*										$75.95
Battery 600 mAh 9.6 V	FNB-38		*	*										$75.95
Battery 650 mAh 6.0 V	FNB-40	*												$48.95
Battery 600 mAh 9.6 V	FNB-41	*												$58.95
Battery 1100 mAh 9.6 V	FNB-42	*												$62.95
Battery case	FBA-12					*				*	*		*	$19.95
Battery case	FBA-14		*	*										$19.95
Battery case	FBA-15	*												$19.95
Battery case AA batteries	FBA-17				*				*			*		$25.95
Cloning Cable	CT-27	*												$10.95
Radio case	CSC-V10	*												$27.95
Radio case FNB-11	CSC-38								*					$19.95
Radio Case FNB-25	CSC-50									*	*			$22.95
Radio Case FNB-26/27	CSC-52									*	*			$22.95
Radio case FNB-25/FBA12	CSC-53					*								$22.95
Radio case FNB-26/27	CSC-55					*								$22.95
Radio Case FNB-25	CSC-56												*	$22.95
Radio case FNB-26/27	CSC-58												*	$17.95
Radio case FNB-41/FBA-15	CSC-68	*												$16.95
Radio case FNB-40	CSC-69	*												CALL

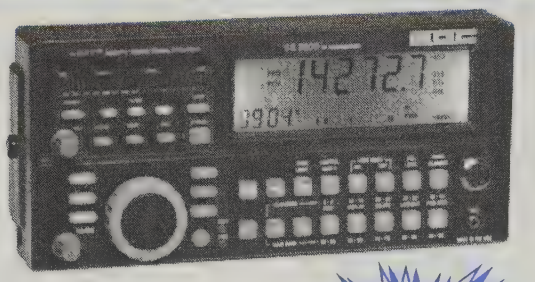
NC-50 Charger Adapters

Model	Batteries Supported	HRO Price
CA-7	FNB-12/14/17	$27.95
CA-8	FNB-25/26/27	$27.95
CA-10	FNB-31/33/38	$14.95
CA-14	FNB-40/41/42	$25.95

The NC-50 quick battery charger supports most Yaesu hand-held batteries. An appropriate adapter will be required. The adapters and batteries supported are shown in the adjacent table.

Look for Ham Radio Outlet on the Web
http://www.hamradio.com
E-Mail West– Ken, K1ZKM: kdm@hamradio.com
E-Mail East– Chuck, KM4NZ: clw@hamradio.com

HF Transceivers



SG-2000ADSP
$1995.95
Suggested List Price

HRO Discount Price $1799.95

The PowerTalk™ SG-2000 packs advanced ADSP and SNS technology into a slim, state-of-the-art, control head. PowerTalk™ greatly increases signal clarity and drastically reduces noise, providing unsurpassed signal quality on the HF bands. You'll hear more and do more with SGC's precision tuning features.

An array of bright red and green LED's provides precise visual tuning of high, low, and center frequencies. Preset and user-programmable memories allow quick recall of ADSP, SNS, and high, low, center, and notch filter settings for easy operation. A high performance spinner knob gives you hands-on tuning.

PowerTalk™ features 644 ITU and ham frequencies including SITOR / AMTOR / PAKTOR telex channels permanently etched into memory, plus 100 user-programmable frequencies and easy Weatherfax connections. It has 150 watts of power, an extra-large, extra-bright LCD display, and the latest surface mount technology. PowerTalk™ is a no compromise HF-SSB power tool. **Note: This radio must be special ordered.**

HRO Discount Price $1499.95

Pictured with Optional Handset Microphone

SG-2000
$1695.95
Suggested List Price

The SG-2000 is a rugged commercial grade all-mode HF transceiver that provides 150 watts PEP output. 100 user defined channels can be set to ham frequencies. The transmit frequency range is 1.8 to 30 MHz; receive range is 500 kHz to 30 MHz.

The SG-2000 can be fully controlled by any standard RS-232 protocol connector. This allows easy implementation of all digital modes. The front panel can be removed to act as a remote head for mobile operation

For more information on this HF transceiver, contact HRO. **Note: This radio must be special ordered.**

HF Amplifier

Call for HRO Discount Price

SG-500
$1195.95
Suggested List Price

The SmartPowerCube produces tremendous power–nearly as much as a 1 KW amplifier–yet it requires less than one cubic foot of space. Electronic brain power makes it possible. The SG-500 is an intelligent, microprocessor controlled, high-powered linear amplifier, designed with high efficiency transistors. It constantly monitors your HF-SSB's activities, power needs, and antenna condition, and automatically–in less than 15 milliseconds–selects the right broadband filter. It can reliably produce, essentially unattended, in the most demanding conditions. Power supply required. SGC PS50 recommended to guarantee specifications. **Now available in export or domestic version.**

- Fully automatic band switching, 12 VDC.
- Input overdrive, over temperature, over current protection.
- Frequency coverage 1.8-24 MHz.
- Power output
  SSB: 500 watts PEP
  CW: 500 watts for 10 minutes; 500 watts continuous with fan
  AM: 250 watts carrier maximum

Digital Signal Processor

NEW!

HRO Discount Price $299.95

PowerClear™
$395.95
Suggested List Price

Use the PowerClear™ control unit for enhanced signal clarity with any HF SSB rig. PowerClear™ is packed with advanced ADSP and SNS technology to greatly increase signal clarity and drastically reduce noise, providing unsurpassed audio signal quality. The listener will hear a remarkable improvement in SSB audio and increased intelligibility of signals.

PowerClear™ cuts out unwanted reception and interference from adjacent stations, allowing clear audio recovery. SNS digital circuitry analyzes the desired audio and undesired noise and automatically reduces the background roar. On digital signals, it automatically strips away interference. The unit has audio and visual fine tuning for swift interception of weak signals and 8 preset and 7 user programmable ADSP memories. The PowerClear™ can also serve as a preamplifier.

SGC's HF-SSB Automatic Antenna Couplers

SMARTUNER®
HF-SSB Antenna Coupler SG-230

$550.95
Suggested List Price

SGC's Smartuner HF antenna coupler combines fully-computerized operation with a wide range of antenna matching possibilities. It is a versatile, clever, automatic device with quite surprising capabilities even on random wires. The Smartuner works with any HF rig.

- Tunes itself on an SSB signal. It does not need a constant carrier.
- Matches antennas from 2.5 to 27 meters long. A minimum length of 8 meters (25 feet) is required for 160 meter operation.
- Operates continuously from 1.8 to 30 MHz.
- Memorizes tuning which has already been done. There are 500 memory spots.
- The perfect addition to your marine-mobile installation.
- Tunes unknown antennas in just two seconds.
- Tunes a known antenna in milliseconds.
- Needs no bandswitching information, special low power tune-up or special wiring.
- 10 to 150 watts input power.
- Input impedance range is 45 to 55 ohms.
- DC operating voltage range is 10 to 15 VDC .9 amps.

DC Coaxial Line Isolator SG-54-70

NEW!

$89.95 for Two
HRO Discount Price

These devices allow up to 25 VDC @ 1.5 Amp to be supplied more than 150 feet via the RF transmission line. Instead of running a separate power cable, use the coax to provide DC power to antenna couplers, antenna switches, pre-amplifiers, or other DC powered equipment at the antenna end of the line. Two isolators required per installation. Broadband isolators provides better than 80 Db isolation for 1.5 MHz through 30 MHz, better 40 Db through 250 MHz.

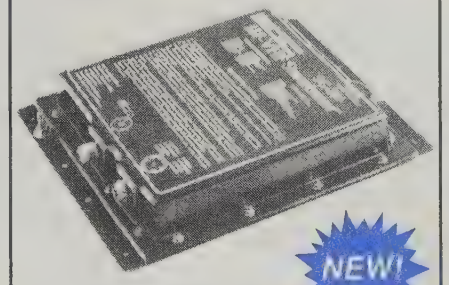
SMARTPRO®
Enhanced HF-SSB Automatic Antenna Coupler for all Modes

$999.95
Suggested List Price
Call for Quote

The SmartPro® automatic antenna coupler does everything the world-proven Smartuner® does so well, but even better.

At its heart is the SG-230 tuner, with some significant enhancements including advanced tuning software and a more powerful and much faster microprocessor.

- Silent and manual tuning of complete networks via RS-232 and desktop/laptop PC computers with SGC Microtune™ software.
- Receiver pre-amp with 12 dB gain and remote control on-off.
- Free Smartlock™ and control software.
- Active, tunable antenna amplifier for RX-only purposes.
- 170 non-volatile memory positions.
- Smartlock® Pro included.
- Built-In-Test-Equipment (BITE) indicators.



NEW!

SG-231 Antenna Coupler

$595.95
Suggested List Price

The SG-231 is a fully automatic coupler for 100 watts for 1.0 to 60 MHz. It uses a microprocessor controlled pi or L network to match most any load to your rig with the SWR always 1:1.5 or better. Tuning solutions are stored in non-volatile memory for fast automatic recall. Operates from 3 to 100 watts and required 12VDC.

SG-235

$1595
Suggested List Price

The SG-235 is a fully automatic coupler for 500 watts that will tune an antenna at least 23 feet long for the HF bands. The SG-235 automatically evaluates and switches 64 input and 32 output capacitor combinations plus 256 inductance combinations in a pi network design. The tuner remembers the chosen frequency and tuning values and automatically reselects those values when transmitting on that frequency. Powerful in combination with the SG-500.

QMS-II
Antenna Coupler System

$1580.95
Suggested List Price
Call for Quote

The QMS-II is an HF antenna tuner that can be strapped to the side of your vehicle.

The package includes an SGC Smartuner™ automatic antenna coupler, an SGC-303 extended full range antenna, and the special exterior, waterproof, mounting package.

At first glance it looks a little unusual, but once you use it, you'll find an almost unbelievable jump in reception and transmitting range (3-20 dB). Mounting the tuner and antenna on the outside reduces engine noise and eliminates power draining antenna wire runs between the antenna and the tuner.

The QMS-II makes a typical HF-SSB perform like it's never performed before. Match it with a cutting edge SGC HF-SSB and it will blast through major mountain ranges. Power and focus are everything in HF-SSB rigs.

ADI CORPORATION

2 m / 440 MHz Mobiles

AR-146
2 Meters
$319.95

AR-446
440 MHz
$345.95
Suggested List Prices

HRO Discount Prices
AR-146: $229.95
AR-446 - $329.95

ADI Corporation offers two FM mobile transceivers for the ham operator: the AR-146 for 2 M and the AR-446 for 70 cm.

- 40 memory channels plus one call channel.
- Band scan, memory scan, program scan.
- DTSS with page function.
- 41 independent CTCSS memory setup functions.
- Programmable VFO.
- Multifunctional microphone with DTMF keys.
- 3-position RF output power control.
- 50 W maximum out for AR-146; 35 W for AR-446.
- Auto power off function.
- 30 minute time-out transmission timer.
- S-meter squelch.
- Dual watch operation.

Options include:
CTC 146 – CTCSS unit
DTS 146 – DTMF unit
SP 146 – External speaker

Dual Band Handheld

HRO Discount Price
AT-600 $299.95
AT-600-HP - $329.95

NEW!

AT-600
Dualband Handheld
$369.95
Suggested List Price

- Simultaneous reception on 2m and 70cm.
- Crossband repeater function.
- Amateur transmit/receive coverage plus extended range reception. AM receive from 108-137 MHz (aircraft).
- MARS / CAP capable.
- 200 memories (120 with alphanumerics).
- Up to 5 W with 12 VDC battery.
- Clones other AT-600's and is PC programmable with optional software.
- CTCSS encoder / decoder built-in.
- CTCSS tone scan.

2 m / 440 MHz Handelds

NEW!

2 Meters
AT-201 – $229.95
AT-201-HP – $249.95

HRO Discounts
AT-201 - $169.95
AT-201HP - $199.95
AT-401 - $199.95

440 MHz
AT-401 – $239.95
Suggested List Prices

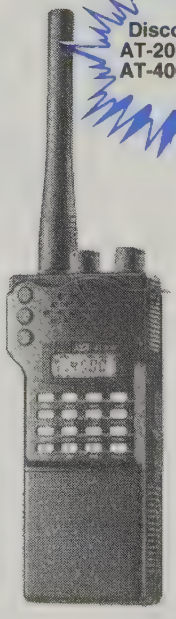
ADI Corporation's new handheld line has all the features of the popular AT-200 & 400 plus many more.

- Extended receive coverage: the AT-201 transmits 144-148 MHz and receives 130-179 MHz. The AT-401 operates 430-450 MHz transmit and receive. By using a simple "keypad mod," the receive ranges extend from 100–179.995 MHz on the AT-201 and 400–480 MHz on the AT-401.
- 40 memories are soft-sectored as 20 memories in each of 2 banks. Memories store any transmit offset and CTCSS tone.
- Automatic repeater offset is featured for quick operation. Just enter the desired frequency and plus or minus and the standard repeater offset is selected.
- Full range or 1 MHz scanning is available.
- Memory group scanning allows scanning a 10 memory group or all 40 memories.
- The display will show either the channel or frequency.
- Can be cloned using a hardware key.
- Fully compatible with all AT-200 / 400 accessories.

HRO Discount Price
AT-200 - $165.95
AT-400 - $179.95

AT-200
2 Meters
$199.95

AT-400
440 MHz
$214.95
Suggested List Prices



These handhelds have output power up to 5 watts using the optional battery or external 13.8 V power supply. The AT-200 transmits on the 2-meter band and receives 130-170 MHz. The AT-400 transmits on the 70 cm band and receives 400-480 MHz.

- 20 non-volatile memories.
- 16-digit DTMF tone pad with monitor.
- CTCSS encode / decode included.
- Programmable non-standard shifts.
- VFO / memory scan.
- Battery save; automatic power off.
- Dual frequency watch.
- Backlit LCD display and DTMF pad.
- One-touch open squelch check.

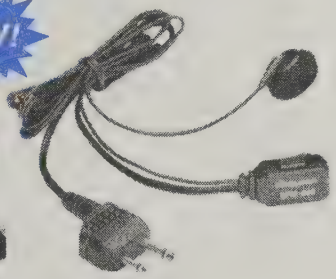
PREMIER communications

Speaker Microphones

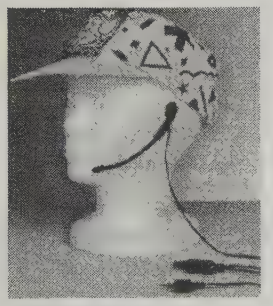
Premier's line of speaker microphones fits most popular HTs. The microphones use electret condenser elements especially designed to enhance American voices. The SPM-500 throat microphone uses a special vibration pickup that eliminates external noises. The SPM-400 is an all-in-one earbud and boom mike requiring no headband or straps.

NEW!

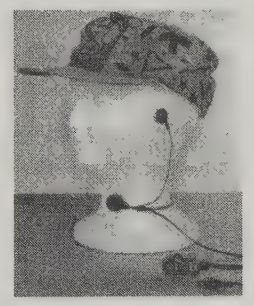
SPM-100



SPM-200



SPM-400



SPM-500

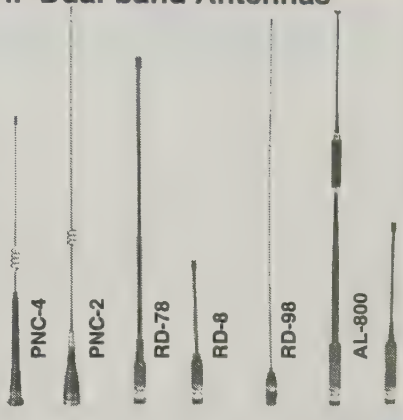
Model	Description	HRO Price
SPM-100	Speaker / mike for ADI, Icom, Standard, Yaesu	$27.95
SPM-101	Speaker / mike for Kenwood	$29.95
SPM-200	Lapel mike and earphone for ADI, Icom, Standard, Yaesu	$18.95
SPM-201	Lapel mike and earphone for Kenwood	$18.95
SPM-300	Speaker / mike for ADI, Icom, Standard, Yaesu. Includes on-mike volume control.	$34.95
SPM-301	Speaker / mike for Kenwood. Includes on-mike volume control.	$34.95
SPM-400	Earpiece with mini boom mike for ADI, Icom, Standard, Yaesu	$25.95
SPM-401	Earpiece with mini boom mike for Kenwood	$26.95
SPM-500	Throat mike and earpiece for ADI, Icom, Standard, Yaesu	$59.95
SPM-501	Throat mike and earpiece for Kenwood	$61.95

Handheld and Mobile Antennas

VHF / UHF Dual-band Antennas

NEW!

Premier's PNC-2 and PNC-4 dual-band mobile antennas feature the new two-way base fitting that mates directly with a regular UHF (SO-239) or NMO (Motorola-type) mount. The PNC-4 also has a fold-over feature.



Model	Description	HRO Price
PNC-2	Dual-band mobile, PNC mount, 3.5 dB, 140-165 MHz, 390-480 MHz	$43.95
PNC-4	Dual-band mobile, PNC mount, fold-over feature, 3.5 dB, 144-148 MHz, 440-450 MHz	$43.95
RD-8	Dual-band handheld antenna, 6.5" long flexible, gold plated BNC connector	$17.95
RD-78	Dual-band handheld antenna, 15" long, 2.15 dB / 3.2 dB gain, flexible, gold plated BNC connector	$22.95
RD-98	17" long, 1/16" diameter dual-band handheld antenna	$24.95
AL-800	Dual-band telescoping antenna, telescopes to 34", collapses to 10." Whip replaceable with 9" "rat tail" (included), 3.2/5.5 dB gain	$34.95

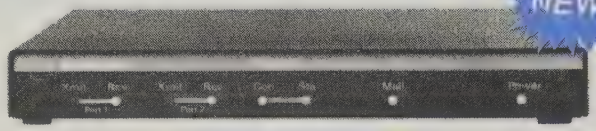
Base Antennas

VHF / UHF Dual-Band Vertical Antennas

The Premier line of base station antennas for dual band operation provides a number of options for the operation of 2m / 70cm rigs from your home base. All antenna models feature corrosion-resistant hardware: stainless steel u-bolts, aluminum bracket, chrome plated tip, and fiberglass radome.

Model	Description	HRO Price
A-200	6' tall. Designed for 140 mph winds. Wt 2.9 lbs. 4.5/7.2 dB gain.	$86.95
A-300	11.5' tall. Designed for 125 mph winds. Wt 3.5 lbs. 6.8/9.3 dB gain.	$129.95
A-1000	17.5' tall. Designed for 110 mph winds. Wt 5.3 lbs. 8.5/11.8 dB gain.	$159.95

Kantronics



NEW!

KPC-9612 Plus
Dual-Speed, Dual-Port TNC

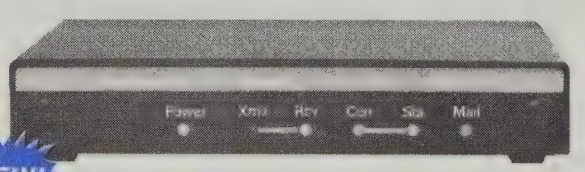
The FCC-certified KPC-9612 is a true dual-speed dual-port TNC capable of 9600 and 1200 baud QSOs at the same time, even if cabled to only one radio. With both ports connected to one radio, the KPC-9612 automatically detects the speed of the incoming signal and transmits at 9600 or 1200 baud. No hardware changes are required to switch speeds, regardless of configuration.It will function as a network node and a TNC at the same time.

The KPC-9612 Plus includes the HC11 processor, supports EMWIN mode, includes Pacterm software and expanded users manual. It is available with either 32K or 128K RAM and can be expanded to 512K. The full-featured PBBS includes forwarding and reverse forwarding to a BBS, remote sysop access and mail-waiting LED. A 9600-ready radio is required for 9600 baud operation. GPS capabilities. The NET, NET/ROM compatible with the optional K-Net.

For its small size and low power requirements, this is an amazingly full-featured packet TNC ideal for both the new and experienced user.

KPC-9612 v. 7.0
Transmits and Receives Pager Signals

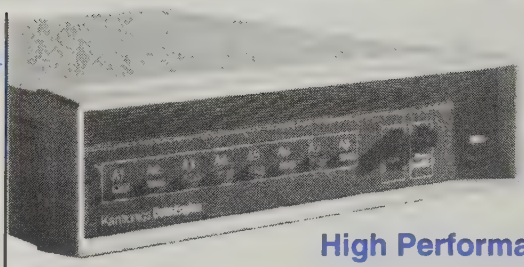
Kantronics has updated the KPC-9612 firmware, now V7.0, to monitor 512 and 1200 bps numeric and alphanumeric RPC1 (POCSAG) paging messages. V7.0 also supports page transmissions and a packet paging server. Ten new paging commands are added. Users may connect to MYPAGE @ 1200 or 9600 to initial a page. A Pagerlog and Pagebook may be established in RAM, assisting the sysop in maintaining and the remote operator in using the paging server. Paperlog logs all pages sent and Pagebook stores call signs and pager capcode pairs. Paging operations required a 9600-like "data ready" transceiver which attaches to the 9600 port of the KPC-9612.



NEW!

KPC-3 Plus – VHF / UHF TNC

The KPC-3 Plus is a small-sized, low-power packet TNC designed for the new user. It replaces the popular KPC-3. A simplified command set allows you to start quickly, then switch to the full Kantronics command set when you are ready. The KPC-3 Plus supports GPS, comes in 32 or 128 kB RAM and uses the HC11 processor. Firmware supports EMWIN mode and ships with Pacterm software. It supports WEFAX with an optional special program. TheNET, NET/ROM compatible with the optional K-Net. It features keyboard controlled digital pot for setting data drive for your radio. There are 2 A/D data acquisition inputs, it complies with FCC and European Community EMC requirements and has an expanded operations manual.



Data Engine
High Performance TNC

The Data Engine is a dual-port packet Terminal Node Controller (TNC) with each port capable of speeds greater than 56 kB (depending on the modem installed). As shipped from the factory, Port 1 has a 1200 baud modem (DE1200) installed and Port 2 is open for whatever you desire: DE19K2 / 9K6, PSK satellite modem, G3RUH 9600 baud modem, TexNet modem, another DE1200 modem, or one of your design. Port 1 can also be used for any of these modems. Configure your Data Engine to your needs.

The Data Engine is based on a V40 processor with a 10 MHz clock, and uses an 85C30 SCC for hardware HDLC. The EPROM and RAM sockets allow up to 1/2 Megabyte of firmware and 1/2 Megabyte of RAM. Eight V40 controlled front panel LEDs and two dead front windows make this an ideal platform for the experimenter. The open architecture allows development to meet future packet needs, aided by the optional Firmware Developer's manual and optional Modem Developer's manual.

Standard firmware includes end-user AX.25, Kantronics Host Mode, KISS mode, BBS mode, PBBS and Gateway. The G8BPQ Packet Switch code turns the Data Engine into a multi-port network node. Data Engine is compatible with today's packet and is designed to adapt to future applications.

DE 19K2 / 9K6 Internal Modem

The DE 19K2 / 9K6 modem is capable of either 19200 baud or 9600 baud (G3RUH compatible) operation. Configured for 9600 baud from the factory, this modem is fully compatible with the popular G3RUH modem, using independent transmit and receive scramblers for full duplex capability.

Select 19200 baud operation for use with the Kantronics D4-10 radio by moving four jumpers. This mode uses the same 17 bit LFSR scrambler and provides direct TTL output to the D4-10 radio for plug-n-go 19200 baud packet.

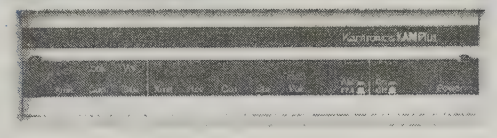
DE1200 Internal Modem

The DE1200 modem is a standard 1200 baud packet modem that has three keyboard selectable carrier detection schemes: sine-wave, energy, and external. When sine-wave is selected, carrier is detected by the presence of audio sine waves (packet tones). Selection of energy defines the carrier detect as any received signal. External relies on the carrier detect of your transceiver. This modem has jumpers for output level, equalization, watch dog timer and interfacing to hand-held radios.

DE Jumper Board

For ease of use with other manufacturer's modems, the DE jumper board installs on the modem disconnect headers of the Data Engine and provides the signals required by most external modems to the rear panel DB-15 connector. TxD, RxD, RTxC, DCD, TOUT2 and GND are always present. TRxC CTS and DTR are jumper selectable. The on-board PTT circuit and watch dog timer may be disabled by on-board jumpers.

KAM Plus



Modes: VHF / HF Packet, RTTY / ASCII, AMTOR (476 and 625), CW, NAVTEX, Host Mode, Kiss Mode (TCP / IP), Gateway, Weather Facsimile (WEFAX), KA-NODE, PBBS (personal packet bulletin board), REMOTE Access, GPS, PACTOR on HF and G-TOR on HF.

Simultaneous operation of HF and VHF packet, KA-Node and PBBS is available while you use other HF modes. Host Master II allows simultaneous 1200 baud packet on VHF and any HF mode: RTTY, ASCII, AMTOR, CW, NAVTEX, PACKET, Pactor, or G-TOR. PBBS can be accessed on Packet, Pactor or AMTOR Mode A (ARQ). PBBS supports Bulletin ID's forwarding and reverse forwarding, NTS traffic personal and bulletin messages.

Features include: Remote access (password protected) to all TNC commands from a second station. Full SYSOP access to the PBBS available from a remote station in packet mode.

Wide bar graph tuning indicator makes tuning HF signals easy. Reliable, fast-acting AGC eliminates the need for a manual threshold adjustment. Preprogrammed 170, 425, and 850 Hz shifts. User definable shift (mark and space tones). Selectable CW bandwidth and center frequency.

Automatic generation of unique 7-character (CCIR 625) selcal of your amateur call sign. Copy the ARRL bulletins using NAVTEX mode to prevent duplicates.

Software

Host Master II+ for Macintosh or IBM

This terminal program allows you to carry on a packet conversation (or several), monitor what else is happening on the channel, and keep everything separate. Plus, with the KAM, work any HF mode (except WEFAX) at the same time.

The Monitor Window displays all incoming packets. The Packet Receive Window is actually many windows on top of each other, one for each stream, and a command window. Use PgUp and PgDn to go to the next channel (window); use ESC for the command window.

The XmitEcho window shows characters as they are transmitted by an HF mode. What you receive from a mode other than packet displays in the non-packet receive window. The transmit window shows what you type and has many windows to coincide with the receive windows. Receive and transmit windows keep your conversations separate and will capture each to its own disk file.

Host Master requires Kantronics Host Mode. Simultaneous multimode support for the KAM requires firmware version 5.0.

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

VHF / UHF Amps

rfconcepts

Call for HRO's Discount Prices

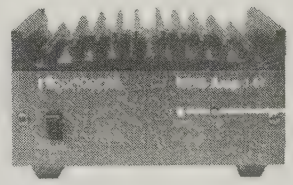
Most RF Concepts amplifiers feature automatic keying, thermal protection, VSWR shutdown, GaAs-Fet preamps, and flow soldered assembly. All solid-state. Made in U.S.A.

Kantronics has redesigned a portion of its RF Concepts FM VHF/UHF amplifier line.

MaxAmps

The popular RFC-2-315 and RFC-42-417 have been replaced by the MAX-AMP 10 and MAX-AMP 45. These new computer designed 2-meter amplifiers feature directional coupler keying, VSWR protection and temperature protection. The MAX-AMP 10 boosts 10 watts in to 150 plus watts out. The MAX-AMP 45 takes 45 watts in and produces 150 wats out. Both units contain a preamp.

MINI-Amps



MINI-Amps are perfect for 2 m and 70 cm HT's. Pre-amps for both bands are available producing 10 or 15 dB gain (the "P" models).

MINI-Amps accept 1 to 6 watts in. With 2 watts in, the MINI-Amp 144 will output 20 watts; 2 watts in will result in 30 watts. The MINI-Amp 440 will produce 20 watts output with only 2 watts in. Each amp weighs only 1.3 lbs. Requires 5A at 13.8 Vdc.

Dual Band
2m / 440MHz
RFC 2 / 70G (with preamp)
143-149: 5 W in = 30 out
430-450: 5 W in = 20 out

144-148 MHz
2 meters*
MAXAmp 10:10 W in = 150+ out
MAXAmp 45:45 W in = 150+ out
MINI-Amp 144: 3W in = 30 out
MINI-Amp 144P: 3W in = 30 out

430-450 MHz*
ATV compatible
RFC 4-110: 10 W in = 100 out
RFC 4-310: 30 W in = 100 out
MINI-Amp 440: 3W in = 20 out
MINI-Amp 440P: 3W in = 20 out

* "P" Models include preamp

Kantronics Prices

Call for HRO's Discount Prices

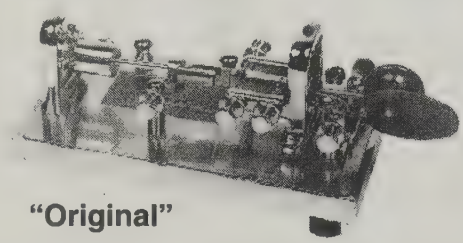
Model	Suggested List
Data Engine (1 Modem)	$379.95
DE 19K2/9K6	$109.95
DE 1200	$89.95
DE Jumper Board	$21.95
Enhancement Board	$109.95
KAM Plus	$339.95
KPC-3 Plusw/ 128K RAM	$179.95
KPC-3 Plus w/ 32K RAM	$139.95
KPC-9612 Plus/128	$309.95
KPC-9612 Plus/32	$289.95
Host Master II+ (PC)	$79.95
Host Master II+ (MAC)	$79.95

KEYERS & STRAIGHT KEYS

VIBROPLEX®

Quality and Pride Throughout

Call for Quotes



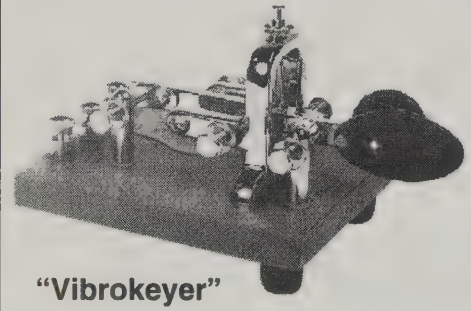
"Original"

The original Vibroplex, with little modification, is made today by the same company using the same tools and dies as always. Modern-day operators can put their fist to the same equipment as the Western Union and railroad operators of old.

Original Presentation: 24K gold-plated brass plate on a highly polished chrome base with bright chrome top parts. Its silky smooth jeweled movements are the same as those used in fine Swiss watches.

Original Deluxe: Same as the Presentation but without the 24K gold plated brass plate.

Original Standard: A crisp textured -finish gray base with bright chrome top parts.

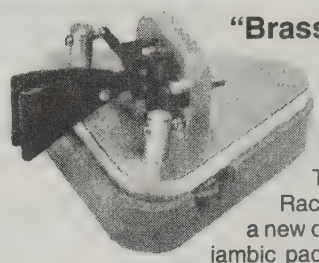


"Vibrokeyer"

The Vibrokeyer is designed for "Bug" operators who want to move to electronic keyers without relearning keying. The single lever paddle imitiates the automatic dots and dashes of the electronic keyer with the same motion used to operate the "Bug." It uses the same main frame and chrome parts as the "Original" for the same smooth and easy operating Vibroplex feel.

Vibrokeyer Deluxe: Highly polished chrome base with bright chrome top parts. Silky smooth movements are jeweled as in fine Swiss watches.

Vibrokeyer Standard: A crisp textured-finish gray base with bright chrome parts.



"Brass Racer"

The Brass Racer–Iambic is a new design of the iambic paddle, crafted from solid brass and mounted on a base of polished hardwood. Paddle tension can be customized with a single twist of our unique tensioning system. No screws, no springs.

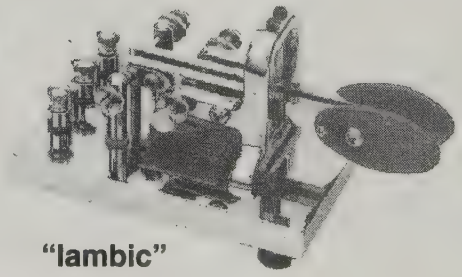
The Brass Racer EK-1 is also a keyer. Concealed in the base is a fully iambic, dot-dash-inserting, adjustable-speed-control keyer using the Curtis 8044 chip. A great unit for mobile or DXpedition.

Brass Racer Iambic: Solid lacquered brass mounted on a hardwood base. **Suggested List $89.95**

Brass Racer EK-1: Same as Brass Racer Iambic but includes a built-in electronic Iambic keyer. **Suggested List $149.95**

Brass Racer Iambic Square Base

Suggested List $129.95



"Iambic"

The Iambic paddle brings the traditional Vibroplex design to modern telegraphy.

Iambic Presentation: 24K gold plated brass plate on a polished chrome base with bright chrome top parts. Silky smooth movements are jeweled as in fine Swiss watches.

Iambic Deluxe: Same as Presentation but without the 24K gold plated brass plate.

Iambic Standard: A neat textured-finish gray base with chrome top parts.

Straight Keys

VIBROPLEX®

We are happy to announce an addition to the line of Vibroplex® keys. For the first time ever, we are offering a STRAIGHT key.

This key is available in three models. The Standard has a black painted base. The Gold features a 24K gold plated base.

	List
Standard	**$139.95**
Deluxe	**174.95**
Gold	**299.95**

Call for HRO prices.

Nye Viking

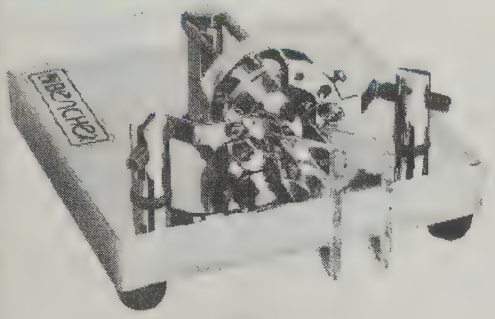
Master Key 330-001

The perfect straight key comes with cord and plug. Isolated contact assembly separates keying circuit from hardware. Includes gold-plated silver contacts, adjustable key arm, Navy knob, and heavy die-cast base. **HRO Price $59.95**

Straight Keys

Keys with gold-plated heavy silver contacts, adjustable key action, and heavy die-cast bases. Brass or nickel-plated hardware, standard or Navy knobs.

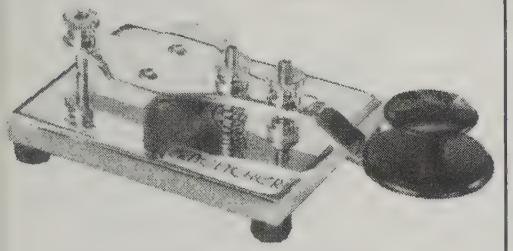
BENCHER, INC.



BY Series Iambic Paddles

You will enjoy the smooth, precise action of a Bencher paddle with any iambic keyer. These paddles feature a heavy steel base, gold plated silver contact points, non-skid feet, stainless steel adjustable spring, self-adjusting needle bearings, and large acrylic finger paddles.

HRO Prices:	**BY-1**	**Black**	**$84.95**
	BY-2	**Chrome**	**$99.95**
	BY-3	**Gold**	**$269.95**
	BY-4	**Gold/Blk**	**$159.95**



RJ Series Hand Keys

The "RJ" hand keys have an advanced American-style design derived from the telegraph keys that won the west, yet with modern features like Oilite bearings, a solid navy knob, gold-plated solid silver contacts, full locking adjustments of all tension and spacing parameters, and Bencher quality materials throughout.

These keys are ideal for the new amateur just mastering code as well as the old time brass pounder anxious to "clear the hook." This key offers the Morse code operator an investment that will bring years of pride and satisfaction.

Try the Bencher "RJ" hand key at your nearby HRO. You will be convinced there is no better key available.

HRO Prices:	**RJ-1**	**Black**	**$81.95**
	RJ-2	**Chrome**	**$94.95**

ST Series Single Lever Paddles

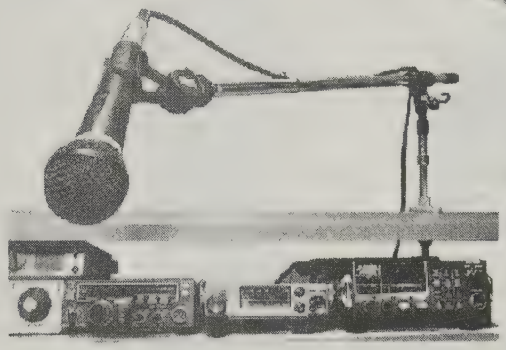
Superb Bencher features and construction for the ham who prefers single lever operation.

HRO Prices:	**ST-1**	**Black**	**$84.95**
	ST-2	**Chrome**	**$99.95**

HM-10 Series

HEIL SOUND

By selecting the correct hardware, you can design the EXACT audio set up you need for your station. With Heil hardware you can clamp it, screw it, bolt it, or hold the **HM-10.** The components are shown below. They are available pre-wired for Kenwood, Yaesu and Icom. Please specify your radio.



Model	Description	Sugg. List
HM-10 (4)	Mike with case and HC-4 element	$85.95
HM-10 (5)	Mike with case and HC-5 element	$85.95
HM-10 Dual	Mike with both HC-4 and HC-5	$131.95
MA-1	Adjustable Boom	$49.95
FS-1	Foot Switch	$24.95
TB-1	Table Base Mount	$19.95

Replacement Mike Elements
HC-4 / HC-5

The **HC-4** is for serious DX and contest operators. With a 10 dB peak at 2,000 Hz and the low rolled off sharply at 500 Hz, this is best for getting through the pile ups. **HRO Price $28.95**

The **HC-5** has higher fidelity and is the recommended element for the Icom SM-5/6. The output level matches that required for the Kenwood and Yaesu HF radios. **HRO Price $28.95**

Pro Headsets

Heil's headsets for the amateur provide comfort and performance. Available for use with Icom, Kenwood and Yaesu. Contact HRO for specifications. Connecting cables optional for Icom, Kenwood and Yaesu.

Pro Set The first in the Pro-Series Boom Headsets, the Pro Set provides superior comfort and quality. **Suggested List $135.95 HRO Price $119.95**

Pro Micro Heil's newest addition to the Pro Series is the Pro Micro. It's virtually a miniature version of the Pro Set. Created for long-term comfort and superior performance, it doesn't cover the entire ear like the Pro Set–a feature requested by some Hams. **HRO Price $99.95**

Pro 5 The Pro 5 is a single side version of the Pro Set. Some have requested a single side Boom Set so they can keep one ear open for room sounds or multiple transceiver monitoring. **HRO Price $109.95**

Many manufacturers offer "coupons" or similar promotions. Call or check our web page at

http://www.hamradio.com

for the latest manufacturer promotions.

10m Mobiles

RANGER
Communications, Inc.

Choose from two Ranger 10 meter amateur transceivers. For low power use, the RCI-2950 with 25 watts PEP should be your selection. For those higher power requirements, the RCI-2970 100 watt unit is now available.

RCI-2950
$449.95

Suggested List Price – Call for HRO Discount Price

Ranger's RCI-2950 is all you'd expect in a top-of-the-line amateur radio transceiver. Built for reliability, it provides a wealth of features. It has full band coverage and all-mode communications. The ten most used frequencies can be pre-programmed for easy access. This is a perfect radio for 10 meter mobile use.

- Full band coverage 28.0 - 29.6999 MHz.
- All mode (USB, LSB, CW, AM, FM).
- Large, easy-to-read backlit LCD display with four-step LCD brightness control.
- Tuning steps 100 Hz; 1, 10, & 100 kHz; 1 MHz.
- CTCSS encoder / decoder (optional).
- Repeater offset switch with standard offsets.
- Built-in dual VFO.
- RIT for fine tuning up to ±3 kHz.
- Noise blanker.
- Selectable programmable tone.
- Squelch eliminates background noise.
- Transmitter output of 25 W for SSB, 12 W CW and 8 W AM / FM.
- RF gain control and RF power selector.
- Multi-function LCD meter shows transmit power, modulation, receive signal strength, and SWR.
- Receive sensitivity AM 0.5 µV, SSB .15 µV, FM .25 µV.

RCI-2970
$599.95

Suggested List Price – Call for HRO Discount Price

This 10 meter HF transceiver has similar performance and features to the RCI-2950. It provides **100** watts PEP output for ten meter amateur operations. This will be perfect as the band conditions decline. Dimensions: 15" long, 10" wide and 6.25" high.

Aviation

ICOM

Icom's air band tranceivers are perfect for portable use. These have the same superior design as their amateur radios.

IC-A22
Super Compact Portable NAV / COM

Call for HRO Prices

The compact IC-A22 aviation transceiver features excellent audio quality on the COM side and a VOR transceiver with CDI function on the NAV side.

NAV features include:

- Display of radial heading TO and FROM VOR stations.
- CDI shows deviation from course.
- 200 navigation channels.
- ABSS identifies direct radial to a VOR.
- Semi-duplex allows you to contact flight services while receiving VOR signals.

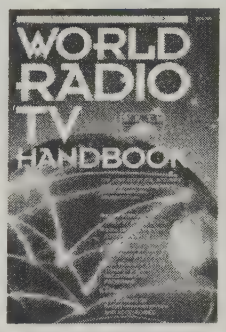
Ergonomic keypad controls all functions. A rotary control allows quick tuning of all frequency and memory channels. This rugged radio has an alpha numeric display, built-in sidetone function, 50 memories, one-touch selection of the 121.5 MHz emergency frequency, scanning, VHF marine weather reception; 12-15 VDC power operation with optional power cord; 5 W output.

IC-A3
Airband Portable COM

This compact 760 COM channel airband transceiver provides easy access to all functions via its ergonomic keypad. A rotary control tunes frequencies and memories.The rugged IC-A3 has an alpha numeric display, built-in sidetone function, 50 memories, one-touch selection of 121.5 MHz emergency frequency, scanning, VHF marine weather reception; 12-15 VDC power operation with optional power cord; 5 W output.

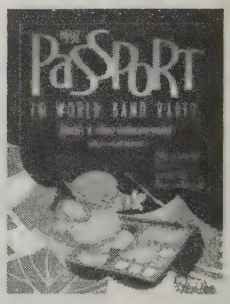
SWL Books

World Radio TV Handbook



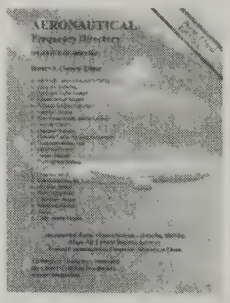
Complete sourcebook for 1000+ English broadcasts. Stations listed by country and frequency. Pages of advice, tips, and Internet addresses. 1997 edition. **HRO Price: $24.95**

Passport to World Band Radio



News and shows from 160 countries. Reviews and advice on how to get started listening to international radio. 1997 edition. **HRO Price: $19.95**

Aeronautical Frequency Directory



Covers military and civilian flying in the continental U.S. Has statewide and national systems, CAP, community frequencies, and air carrier designators. Lists towers, departure, ground, enroute, emergency frequencies, and much more. Third edition. **HRO Price: $21.95**

More SWL books on pages 51-53.

SWL RECEIVERS / ANTENNAS

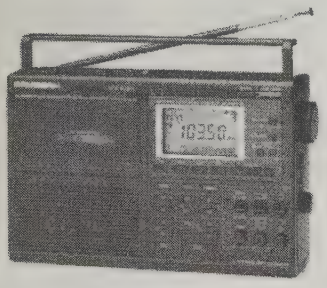
SANGEAN

NEW!

ATS-909
$269.95
HRO DIscount Price

Sangean's ATS-909 is a full featured, portable SWL receiver.

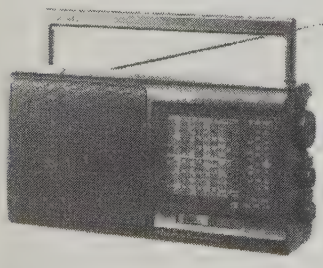
- 306 memories – 261 SW, 18 MW, 18 FM, 9 LW.
- 5 tuning methods.
- ATS Auto Tuning System.
- Auto SW Search.
- Manual editing to insert 8 alpha-numeric characters on the display.
- SSB (LSB and USB) with 40 Hz tuning steps.
- 3 individual timers.
- Direct key to recall your favorite station.
- Wide / narrow filter.
- Mono / stereo selector switch.
- Separate audio recorder output and standby control jacks.
- PLL dual conversion receiver with tone control.



ATS-818CS
$359.95
Suggested List Price
Call for HRO Discount Price

Sangean's portable world band receiver with built-in cassette recorder offers more features and performance than many other table-top short wave receivers.

- Covers all SW bands from 120 m to 11 m.
- Dual time display.
- Has BFO for receiving SSB and CW.
- Covers FM broadcast band.
- Memories store your favorite frequencies.
- RF gain control.
- Features a clock alarm.



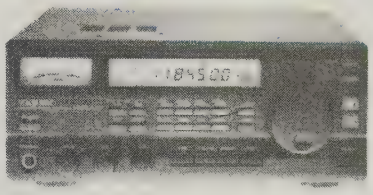
NEW!

SONY

ICF-SW600
$69.95
Suggested List Price

Sony now offers an Emergency Radio for the novice user. The user friendly ICF-SW600 12-band receiver has tone control, an LED tuning indicator, built-in transformer, portable AC/DC operation and a 4-inch speaker.

YAESU

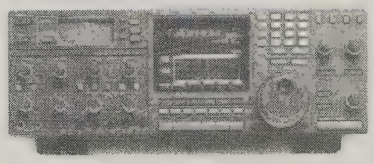


FRG-100B
$719.95
Suggested List Price
Call for HRO Discount Price

Yaesu's high performance receiver provides general coverage in CW, SSB, AM and FM modes from 50 kHz to 30 MHz.

- LCD display with 10 Hz read-out.
- 50 fully tunable memory channels.
- Selectable standard tuning steps plus user-programmable steps.
- Multi-function scanning.
- Adjustable BFO with selectable CW sideband.
- Optional FM unit and CW filters.
- Broadcast band selection mode.

ICOM



R-9000
$7508.95
Suggested List Price – Call for HRO Discount

Notice: Federal and State Government Agencies and Communications Customers Only

Icom's top-of-the-line receives 100 kHz to 1999.8 MHz*. Eleven bandpass filters use GaAsFETs for the VHF and UHF bands. Modes include: LSB, USB, CW, AM, FM, WFM (wide-FM) and FSK. The receiver has a multifunctional CRT display with spectrum scope to provide information on the status of the radio as well as incoming signals. It shows contents of the memories, dual clocks, weekly and daily timers, and frequencies of the dual VFO's. Dynamic range is 60 dB and sensitivity is approximately 1μV.

SWL Antennas

DYMEK
DA100E

The World's Most Respected Short-Wave Active Antenna

Frequency Coverage: 50 kHz to 30 MHz, continuous.
Height: 4 feet 8" (142cm).
Output Impedance: Switch select 50, 100, or 500 ohms.
Attenuation: Switch selectable 0,10, 20 dB.
Power Required: 110-120 or 220-240 VAC switch selectable, 50-60 Hz, 4 watts, or 12 VDC 0.4 Amp.
Dimensions: Antenna Module: 3.75"W x 4.375"H x 2"D (9.5 x 11 x 5cm).
Power Supply: 6.5"W x 3"H x 7.5"D (16.5 x 7.6 x 19cm).
Shipping weight: 9 pounds (4.1 kg).
HRO Price $179.95

Antenna Supermarket

SWL Sloper

The Sloper covers SWL bands from 11-120 meters. Automatic band switching. SO-239 connector for attaching coaxial cable. **HRO Price $79.95**

Eavesdropper™

This high performance trapped dipole for the 11-60 meter SWL bands is 42 feet long. Twin lead or coax models are available. **HRO Price $79.95**

SONY

AN-1
Active Antenna

For the SW listener with space problems, the AN-1 has a frequency range of 150 kHz to 30 MHz. Has a low noise FET in the built-in preamp. Built-in attenuator. Requires 6 AA batteries or AC-12 adapter. Antenna can be used inside or outside. Comes with 39 feet of cable. **HRO Price $99.95**

SONY

NEW!

ICF-SW1000T

$699.95

Suggested List Price

Here's a world band radio with a cassette player / recorder built-in.

- Has AM (LW/MW/SW), FM stereo, SSB
- Feather touch mechanism.
- Timer record capability with cue & review.
- Auto reverse and auto tape select.
- 10-key direct access tuning.
- 32 station memory presets.
- 1 kHz step tuning.
- Built-in clock with alarm / sleep functions.
- Dual standby functions.
- Synchronous detector circuitry.

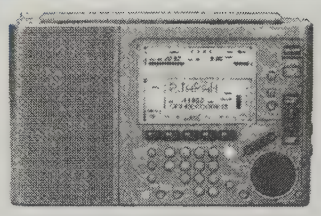
ICF-SW100S

$449.95

Suggested List Price

The heart of this world-band radio system is a multi-band receiver the size of a cassette case. It weighs only 8 ounces with batteries. The kit provided includes a carrying case, active antenna, multi-voltage AC adapter and in-the-ear stereo headphones.

- Covers FM 76-108 MHz, 150 kHz to 29.995 MHz plus SSB.
- Access frequencies directly with key pad.
- 50 station memory presets.
- Band selector accesses SW bands.
- Auto-scan searches a band for signals and stops for 1.5 seconds.
- LCD has 24 city name/time display.
- Built-in clock with alarm and sleep timer.
- Two position tone control.
- Separate active antenna for better SW reception.
- Requires 2 AA batteries (not supplied) or power from the AC adapter included.
- Jacks for an external speaker, external antenna and DC in (3 volts).



ICF-SW77

$624.95

Suggested List Price

The ICF-SW77 is the step-up model of the popular ICF-2010. It has provisions for 150 station memory presets to find your favorite station quickly. For better tuning, the ICF-SW77 has 50 Hz tuning resolution. Enter the name of a station and it will display when the particular memory is selected.

ICF-2010

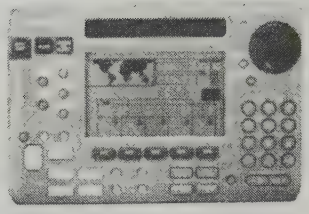
$429.95

Suggested List Price

This popular portable SWL receiver is a super-compact world band radio that delivers fast direct access tuning with the utmost accuracy.

- AM coverage 150-29.999 MHz.
- FM broadcast band coverage.
- Dual PLL quartz frequency tuning provides stability and reduces drift.
- Built-in quartz clock and Sleep Timer with 15, 30 or 60 minute settings.
- Has BFO for receiving USB, LSB and CW.
- Instant recall of 32 station presets.
- Memory scan tuning samples preset stations.
- Automatic band scan gives a sample of each station on the selected band.
- Switchable IF bandwidth has "narrow" mode.
- Comes with the AC-DC adapter.
- The clock requires 2 AA batteries (not included). **These must be installed for the radio to work.**

Call for HRO discounts on Sony radios.

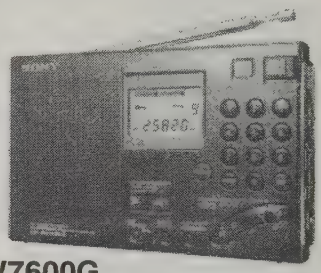


ICF-SW55

$429.95

Suggested List Price

The ICF-SW55 is the step-up model for the ICF-SW7600. It includes 100 station memory presets with the ability to display station name (up to 99 page labels). Tune with 1kHz resolution by rotary dial or 10-key Direct Access™. Step and scan tuning are also included. The ICF-SW55 features SSB reception for amateur voice and Morse code broadcasts. ROM memory eliminates the need for a battery backup. FM stereo reception is also featured. Know the time anywhere with the built-in world clock.



ICF-SW7600G

$229.95 - Suggested List Price

Explorers and travelers love this versatile World Band Radio® receiver with stereo FM reception and instant access to all channels and bands. The built-in clock timer has sleep and stand by functions.

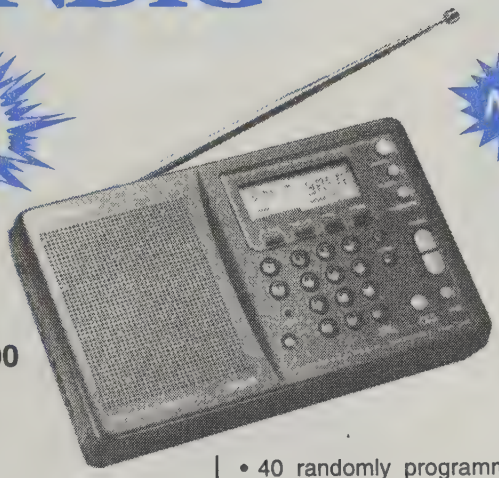
- AM (LW, MW, SW) / FM stereo reception is provided over a wide range of frequencies from LW and MW to SW and FM.
- Dual-conversion superheterodyne circuitry on the shortwave bands provides high sensitivity and interference rejection.
- 10-key Direct Access™ tuning.
- PLL quartz synthesis tuning gives accurate, drift-free frequency selection.
- SSB circuitry for reception of voice and Morse code (CW) on amateur bands.
- Manual and automatic scan tuning provide easy frequency selection.
- The display is liquid crystal (LCD).
- Antennas include a built-in ferrite bar for MW and LW and a telescoping whip.
- A jack for easy antenna connection.
- A 3" speaker and high / low tone provides a wide range of sound for music or news.
- Requires 4 AA batteries (not included) or the optional worldwide AC adapter.

GRUNDIG

SWL RECEIVERS

HRO
Discount Price
YB-400 - $169.95

NEW!



Yacht Boy 400

$269.95
Suggested List Price

The Grundig Yacht Boy 400 has the best digital technology provided in a digital world receiver.

Model 400 provides continuous coverage from 1.6 to 30 MHz in a compact package. It receives single sideband signals from amateur radio as well as military and commercial air-to-ground and ship-to-shore. It is excellent for the beginner to the advanced listener, especially for users needing a small radio with full features.

- Shortwave, AM and FM modes from 1.6 to 30 MHz. No tuning gaps allows all frequencies to be monitored including shortwave, AM, longwave and FM Stereo.
- 40 randomly programmable memory presets allow for quick access to favorite stations. The memory "FREE" feature automatically shows which memories are unoccupied and ready to program.
- The LCD multifunction display simultaneously shows the time, frequency, band, automatic turn-on, and sleep timer.
- Clock, alarm and timer features provide dual alarm modes (beeper and radio). Dual clocks show time in 24 hour format. The sleep timer is programmable in 15 minute increments to 60 minutes.
- Enter frequencies directly by using the front panel key pad and the radio will automatically select the correct band.

NEW!

Yacht Boy 305

$159.95
Suggested List Price

HRO
Discount Price
YB-305 - $129.95

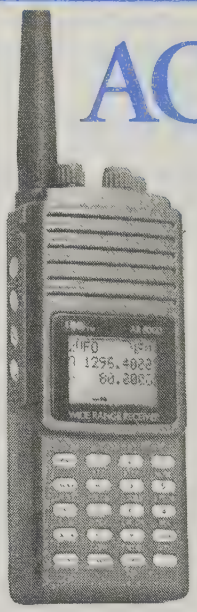
The Grundig Yacht Boy 305 is designed for those SWL listeners who are not interested in SSB, who do not require an alarm or clock and who are on a budget.

Model 305 provides continuous coverage from 2300 to 21850 kHz and utilizes the Grundig digital and phase locked-looped technology. It covers all existing SW bands plus FM stereo and medium wave.

There is a large cavity speaker enclosure for rich sound and 30 preset memories for building your own library of stations. The YB-305 features direct entry digital tuning, auto-scan and up or down slewing, telescoping antenna for FM and SW, a built-in ferrite core antenna for AM, external antenna socket, LED tuning indicator and tone control. Requires 2 C-cell batteries (not included). AC adapter is optional.

All-Mode Receiver

AOR



AR8000

All-Mode Receiver

$799.95
Suggested List
Call for HRO
Discount Price

AOR has produced a new breed of receiver which combines full computer compatibility with advanced wide-band radio receiver technology.

Although it looks like a conventional handheld, the AR8000 is significantly different once you turn it on. You are greeted by a sign-on message on the LCD display. The receiver is simple to operate and comes with a compete, descriptive operating manual. It can be connected to an external computer for remote control.

The highly sensitive receiver covers 500 kHz to 1900 MHz continuous (cellular phone band blocked). Step size is programmable in 50 Hz increments for smooth tuning. All mode reception is provided for AM, USB, LSB, CW, NFM and WFM. An independent 4.0 kHz SSB filter is included.

The LCD is a new dot matrix design. It has four lines and may display signal strength and a band scope showing band occupancy. Two VFO frequencies may be displayed simultaneously, one with a standby frequency for quick transitions. Alphanumeric comments may be stored along with frequency, mode and attenuator status.

The microprocessor offers 1000 memory channels divided into 20 banks of 50 channels each. Special frequencies may be entered in the memories and recalled only after entering a "password." The AR8000 will search and scan at a speed of 30 increments per second.

GARMIN

GLOBAL POSITIONING

Garmin's Personal Navigator GPS receivers are low-cost and full-featured. This family of satellite navigation equipment can guide you anywhere you want to go.

GPS 45XL Personal Navigator

The industry's smallest GPS receiver, the GPS-45XL has changed marine navigation. Its rocker switch keypad provides straight forward, simple operation.

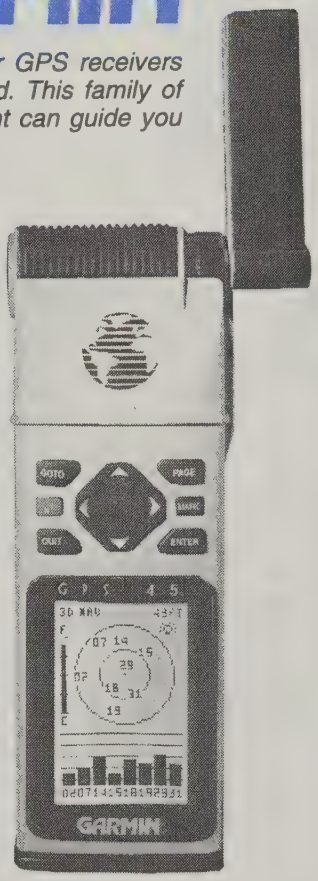
Take a fix, plot a course, or plan a route on the large moving map display.

The GPS weighs only 9 ounces but is packed with features. The MultiTrac8™ uses up to 8 satellites for fast and accurate positioning. There are now 11 different grid and position formats. The rocker/keypad system allows room for a large, backlit LCD display with new fonts to enhance the easy-to-read characters and full-featured graphic plotting. The light weight ergonomically-designed case fits comfortably in the palm of your hand.

Graphic presentation pages for satellite status, position, compass, moving map plotting and CDI navigation offer intuitive guidance and user-friendly operation.

Other features include 250 alphanumeric waypoints, 20 reversible routes with up to 30 waypoints each, re-setable trip odometer, 12 or 24 hour clock, and 10 to 20 hours of use from a single set of alkaline batteries. Includes a BNC remote antenna jack.

Optional accessories include mounting kit, power/data cable, cigarette lighter adapter, PC kit and remote antennas. Contact your nearest HRO for details. **HRO Price: $269.95**



Excellent for Packet

GPS 12XL Personal Navigator

This handheld GPS has a powerful 12 channel receiver for fast, accurate positioning. It is designed for boaters, hunters and hikers who use a GPS in the most challenging environments.

- PhaseTrac12 parallel channel receiver for fast position fixes in the toughest conditions including tree canopy and urban obstructions.
- Rugged, compact case that meets military 810(e) specification.
- External antenna and internal beeper alarm.
- 500 user waypoints with alphanumeric name and user comments.
- 20 reversible routes of up to 30 waypoints each.
- TracBack navigation automatically turns your track log into a route back home.
- 9 proximity waypoint alarms
- Over 1000 track log points, position averaging, emergency erase, and cloning features.
- Up to 12 hours battery life on four AA batteries (not supplied).

HRO Price: $249.95

Garmin Accessories

Description	GPS II	GPS 12XL	GPS 38	GPS 45XL	List
GA28 Low Profile remote marine antenna with 30' cable/ BNC	*	*	*	*	$149.95
GA26 Low Profile antenna, magnetic and suction mounts, 8' cable, BNC	*			*	$127.95
GA27 Low Profile remote antenna, magnetic and suction mounts, 8' cable, MCX connector		*			$127.95
Mounting Bracket		*	*	*	$31.95
Power/Data Cable	*	*		*	$27.95
Cigarette lighter adapter	*	*		*	$23.95
PC interface cable	*	*	*	*	$38.95
PC interface cable w/cigarette lighter adapter	*	*		*	$45.95
PC4X navigation software and cable kit	*	*	*	*	$99.95

GPS II Personal Navigator

The GPS-II is designed with over-the-road and off road adventures in mind. Features a state-of-the-art two-way screen display for vertical or horizontal orientation. Has an external antenna for improved reception, dedicated zoom keys, diagonal paning, auto start/stop trip timer and average and maximum speed recordings.

- MultiTrac8™ operating system continuously tracks and uses up to 8 satellites.
- Rocker keypad, backlit LCD display, full featured moving map plotting.
- EZinit feature for fast "point-and-shoot" initialization.
- Dedicated keys for zooming from 0.2 to 360 miles.
- User selectable navigation screens for compass or graphic highway steering guidance.

HRO Price: $199.95

GPS 38 Personal Navigator

The GPS-38 is a lightweight, proven receiver in a compact package – all at a very affordable price. The GPS-38 features an enhanced operating system that includes:

- EZinit for quick and easy first time initialization.
- Backtrack– an extension of the route feature that allows users to exactly re-trace their course.
- Compass navigation "page" that depicts a rotating compass dial, displaying a track-up indication of the direction you are heading.
- Redesigned moving map allows a larger presentation by only showing the information pertinent to that trip.
- Eleven user selectable grid formats.
- Improved screen readability.

HRO Price: $229.95

PHONE HOME

MAGELLAN
Satellite Navigation and Communications

Global Satellite Communicator

NEW!

GSC-100
$999.00
HRO Discount Price

Stay in touch no matter where on earth you go. Send and receive e-mail from the most remote places. With its integrated GPS, you can navigate with assurance and relay your position to anyone, anywhere.

With an easy-to-use, menu-driven interface, the GSC-100 allows you to send and receive messages through the ORBCOMM network, a wireless, two-way satellite system with global coverage. The GSC-100 communicates with the satellites on a standard narrow-band VHF frequency. Your e-mail is routed through a Gateway Station and on to its final destination via traditional methods.* Create, edit, forward, and store up to 100 text messages. The address book takes up to 150 entries.

The integrated global positioning system helps you identify your position, plot and track your course, or store 200 waypoints. Store five reversible routes of 15 legs. Features six graphic navigation displays.

Rechargeable NiCad battery pack included as well as an AC adapter for 10-35 VDC. Includes ORBCOMM telescoping and GPS internal patch antennas.

*Additional cost for satellite time. Call for more information.

World Phone

NEW!

Satellite Telephone
$3999.95
Suggested List Priced

Magellan is pleased to announce that in May they will begin offering a new satellite telephone product based upon the revolutionary mini-M service from Inmar-sat.

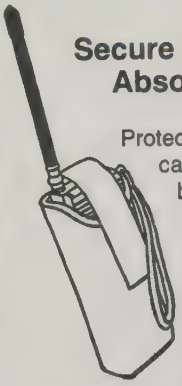
Advanced Mini-M technology allows the size, weight, and cost of the phones to be even further reduced than the *micro*COM-M service previously used. The new Magel-lan mini-M phone will provide global voice, fax, and data communications in a smaller, light weight and lower priced package, retailing for about $4000. Airtime charges are just over $3.00 per minute.

The Magellan mini-M phone will ship complete including the phone, internal battery, waterproof remotable antenna, and AC converter/charger. The phone will be fully capable of voice, fax, and data communications without any additional costs or upgrades.

POUCHES

Radio Protectors

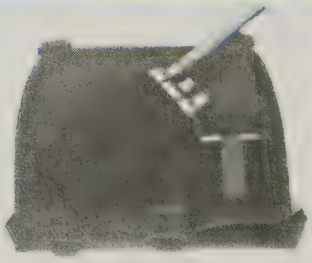
The Pouch



Secure Shock Absorber

Protective carrying-case made of black nylon bonded to bouncy neoprene. Quick release, snap-out belt loop lets you remove entire holster from your belt instantly. Web restraining strap secured on front with velcro.

Models	HRO Prices
10T/ 50R	$14.95
508b	$14.95
All Others	$17.95

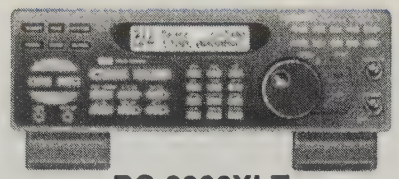


ChestPOUCH

You get "hands-free" security with the ChestPOUCH. Heavy-grade, double-ply black cordura covers plastic "leather" chest-plate for durability, pliability and toughness. Tough, resilient nylon-covered neoprene for radio and battery holders. Fully adjustable "harness" attaches to bib. Pen or penlight holder, big back pocket for maps, manual, etc. Only for radios which fit POUCH sizes: SS, S1, S2 or S3 above. **HRO Price $25.95**

Manufacturer	Radio Model	Pouch Model	Comments
ADI	AT-200/400	S1	
Alinco	DJ-G5T	Slim	
	DJ-S41	P5	
	DJ-180	S1	
	DJ-191	Slim	
	DJ-580 &582	S2	
Azden	AZ 11/21/61	S3	
Icom	IC-2GXAT	S1	
	IC-2iA/4iA	P5	
	IC-2SAT/P2AT	P5	
	IC-21	S2	all: 21 T/V/W/X ATs
	T7	P5	
	IC-T22	P5	
	IC-W31/W32	S2	
	IC-Z1A	S2	
Kenwood	TH-22/42A	SS	for 5 watt battery
		Slim	for 3 watt battery
	TH-28/48A	S1	for low pwr battery
		S2	for high pwr battery
	TH-78A	S1	for low pwr battery
		S2	for high pwr battery
	TH-79A	S1	for low pwr battery
		S2	for high pwr battery
Standard	C-108/508	508-b	for both radios
	C-156	P5	
	C-158/458	S2	
	C-168/468	S1	
	C-178	S1	
	C-*28 Series	S2	all C228/528/628
	C-558	S2	
	C568	S3	
Yaesu	FT-10R/FT-50R	10R/50R	fits 2 & 5 watt batteries
	FT-11R/41R	P5	
	FT-51R	SS	
	FT-530	S2	

Base Units

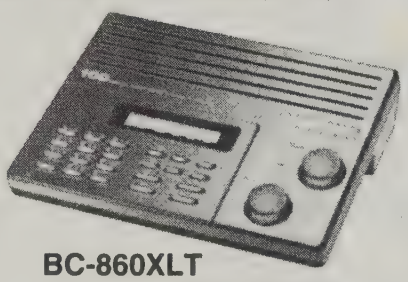


BC-9000XLT

$599.95

Suggested List Price
Call for HRO Discount Price

The 9000XLT provides 500 channels with continuous band coverage. It receives 25 to 550 MHz and 760 to 1300 MHz (except cellular bands). It has Turbo Scan and Search; 10 priority channels; AM, NFM and WFM modes; selectable attenuator, data skip, automatic store and sorting; automatic control tape ON/OFF, and tape output.



BC-860XLT

$279.95

Suggested List Price–
Call for HRO Discount Price

The BC-860XLT covers 12 bands with aircraft and 800 MHz (cellular blocked). It divides 100 channels into 10 banks of 10. Ten are priority channels. Scans 100 channels per second. LCD display shows the channel and frequency being scanned. One touch access to the weather channels.

Handheld Scanners

BC-3000XLT

$619.95

Suggested List Price
Call for HRO Discount Price

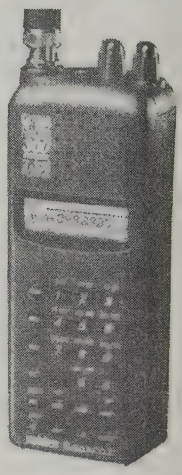
The continuous band coverage 3000XLT has 400 channels. It covers 25 to 550 MHz and 760 to 1300 MHz (except cellular bands). It has Turbo Scan and Search; 10 priority channels; AM, NFM and WFM modes; selectable attenuator, data skip, automatic store and sorting; flexible antenna; and rechargeable battery.

BC-235XLT

NEW!

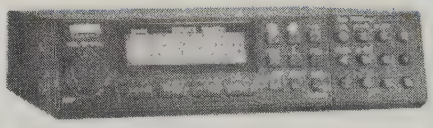
$449.95

Suggested List Price
Call for HRO Discount Price



The BC-235XLT is the industry's first **Trunk Tracking** scanner. This fully programmable 800 MHz handheld scanner has 300 channels (10 priority) for programming: 12 bands in 10 banks including aircraft and 800 MHz (with cellular frequencies blocked). Preprogrammed service search allow you to toggle through police, fire, emergency, aircraft, marine and weather frequencies. Trunk scan and scan lists scan for activity on one trunk group or create lists of multiple groups to scan (e.g., fire or police). Trunk search searches and monitors all groups within a trunked system. The LCD display shows the channels being scanned and the frequency for each channel. Includes two rechargeable NiCad battery packs and CRX120 battery charger.

Mobile Scanner



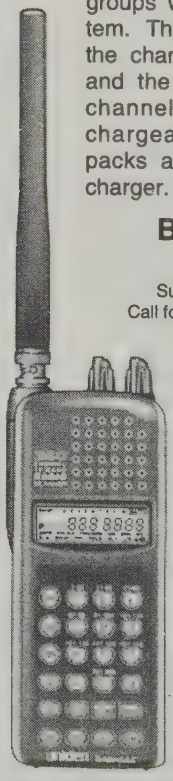
BC-760XLT

$499.95

Suggested List Price
Call for HRO Discount Price

This mobile scanner includes 800 MHz coverage except for cellular.

- 100 programmable channels organized in 5 scanning bands of 20 channels.
- Auto scanning of preprogrammed aircraft, police, marine and emergency services.
- Weather search, priority, squelch, lockout and delay.



BC-230XLT

$349.95

Suggested List Price
Call for HRO Discount Price

The compact 230-XLT has 200 channels in 12 bands including aircraft (800 MHz blocked). It features twin turbo scan and search, programmed SVC search, unique skip data, and manual channel access. It has a LCD frequency display, one touch, and a rechargeable NiCad battery.

Scanner Books

Monitor America

Frequencies, codes, maps, and descriptions of public safety, business, AM and FM broadcast radio. Covers 250 metropolitan areas and resort locations such as Disney World, race car teams, and casinos. Third edition. **HRO Price: $29.95**

Call for more scanner books.

Beyond Police Call

Scanner frequencies for all those other uses: sports events, amusement parks, newspapers, mall security, movie crews, hospitals, taxis, conventions, farm cooperatives, private investigators, public utilities, hotels, and much more. First edition. **HRO Price: $9.95**

BUILD IT YOURSELF

Kits

RAMSEY

HRO has a collection of kits for the amateur who likes to construct equipment for the shack and save money too! Some of the kits available are shown below. Call for other kit information.

Micro Memory CW Keyer CW-700
Has true iambic keying, 4 programmable messages, speed from 3 to 60 wpm.
HRO Price $69.95

H1Q-CW Audio Filter AF-1
Has 4 selectable bandwidths and adjustable center frequency.
HRO Price $29.95

Tone Encoder / Decoder TD-1
Will simultaneous encode and/or decode any frequency from 400 Hz to 5000 Hz.
HRO Price $7.95

Tone Grabber TG-1
Touch Tone Reader grabs touch-tone number off the air, decodes and stores any number it hears.
HRO Price $79.95

Voice Activated Switch VS-1
Switches relays or low voltage loads up to 100 mA.
HRO Price $6.95

RF Actuated Relay Switch RFS-1
Allows RF switching up to 100 watts to UHF frequencies.
HRO Price $14.95

Stepper Motor Driver SMD-1
For building an accurate positioner, X-Y controller, plotter, robot.
HRO Price $24.95

VHF Mini Receivers
Tune any 5 MHz of selected band, excellent sensitivity.
FR-146 2m Receiver $34.95
FR-220 220 MHz $34.95

20 m SSB / CW Transceiver SX-20
With DDS, 2 VFOs, memory, 10 watts out, digital readout, built-in CW keyer, hand mike.
HRO Price $269.95

QRP CW Transmitters
Work the world on just 1 watt. Provision for 2 internal crystals (one provided). VCXO tuning allows frequency tuning about 7 kHz around crystal. Internal T/R Switch
QRP-20 20 meters $29.95
QRP-30 30 meters $29.95
QRP-40 40 meters $29.95
QRP-80 80 meters $29.95

QRP Linear Amplifiers
Work great with the 1-2 watt transmitter to provide up to 20 watts output. Have built-in T/R switches and operate on CW, SSB or AM. Great for use with the QRP CW transmitters above.
QAMP-20 20 meters $49.95
QAMP-30 30 meters $49.95
QAMP-40 40 meters $49.95
QAMP-80 80 meters $49.95

Active Antenna AA-7
Eliminates the need for outdoor wiring. 15 dB gain.
HRO Price $29.95

Tickle-Stik TS-4
Tickle or stimulate. Once you grab it, you let go quickly.
HRO Price $9.95

http://www.hamradio.com

BOOKS

artsci

Reference

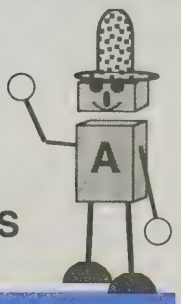
Amateur Handbook
This book is like a mini Amateur library! Contains charts, tables, construction plans for all areas of amateur radio. Never go looking through all your other books again for that piece of information. It's here! **HRO Price $14.95**

U.S. Repeater Map Book
The PERFECT traveling companion for the radio enthusiast. Road maps show major highways and cities in every state. Amateur radio repeater frequencies are included. This is a must for truckers and travelers. Maps are enhanced to provide greater highway detail. **HRO Price $9.95**

Technical

Guides to Technical Radio Modifications & Alignment Controls
Easy to follow instructions (with detailed drawings) to enhance almost all brands of amateur HT's and mobile radios. Includes extended frequency plans. **Volume A** (Icom, Kenwood, Scanners), **Volume B** (Alinco, Standard, Yaesu, Others) **HRO Price $19.95 each**

Lost Users Manuals
Lost the manual to your radio? Bought a used radio with no manual? Lost Users Manual contains operating instructions on most popular VHF & UHF radios: Alinco, Icom, Kenwood, Yaesu, Uniden. **HRO Price $19.95**



BOOKS

License Prep

Riding the Airwaves with Alpha & Zulu
Let Alpha, Zulu and other characters teach you and your kids amateur radio. Have fun studying for the Novice and No-Code Technician tests. 288 pages of cartoons, mini tests and games. **HRO Price $14.95**

Scanning

Federal Assignments
Ever wonder what the federal government agencies are up to? Listen in! This book, third edition, has the secret frequencies used by our government. By far this is the most comprehensive book we know of. **HRO Price $24.95**

Police & Fire Communications Handbook
With the ever changing police frequencies in Southern California, it's time an accurate, up-to-date scanner book was available. More than 380 pages of frequencies, inputs & tones. **HRO Price $19.95**

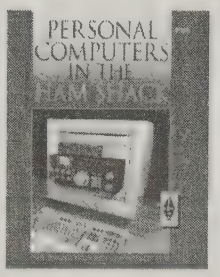
Shortwave

North American Shortwave Frequency Guide
A comprehensive by frequency list of all HF broadcasts by every country (worldwide) and service that can be heard in North America. **HRO Price $19.95**

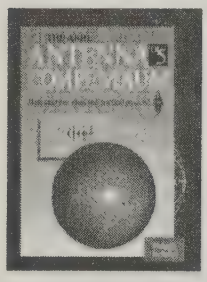
ARRL BOOKS / CD-ROMs

What's New

Personal Computers in the Ham Shack



Hams and computers, computers and hams – they're all but inseparable these days. Now there's one place to learn how to use your personal computer for all kinds of ham-related tasks: logging and contesting, station control, QSLing and circuit design. Includes a glossary of terms and a resources chapter with references for further information. **$15.95**



ARRL Antenna Compendium Volume 5

The latest in the popular series, a compilation of never-before-published articles on antennas, transmission lines and propagation. Features articles on HF discones, ray tracing, dual-band VHF whip and many more. Includes valuable software. **$20**

Getting On Track with APRS

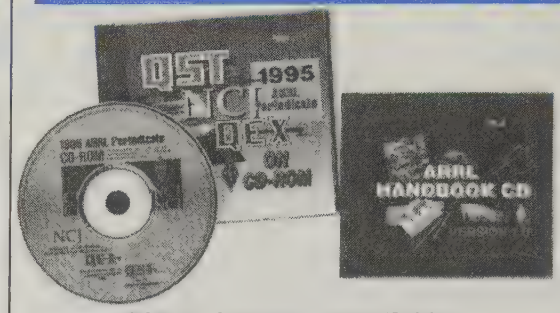
A Hands-On Guide to the Automatic Packet Reporting System

Your one stop for quick-and-easy iinstructions for installing and using the exciting new APRS software. Anyone with a packet station and computer can join the fun. APRS provides a real-time map display of participating stations. When used with a GPS receiver, it is ideal for tracking moving stations. Separate sections cover DOS, Windows and MAC platforms. Chapters include custom installation, map-making, harware requirements, and even specialized uses such as direction finding, telemetry and DX plotting. **$14.95**

QRP Power

Whether you've just been bitten by the urge to operate flea power, or you've already discovered just how much fun it is to operate with 5 watts or less, this is the book you've been looking for. It's crammed with projects you can build and resource information you can use. In addition to the best recent QRP-related articles from QST, QEX and The ARRL Handbook, there's a new, in-depth article on NN1G's popular 40-40 transceiver. **$12**

ARRL CDs



QST on CD-ROM - 1995 Edition

Retail $19.95

SEARCH the full text of every ***QST***, ***QEX***, and ***NCJ*** article by entering titles, call signs, names – almost any word.
SEE every word, photo, drawing and table in technical and general-interest features, columns, and product reviews, plus images of over 1000 ads.
PRINT what you see with any *Windows*-compatible printer or copy it into other *Windows* applications.

ARRL Handbook CD 1.0

Retail $49.95

Features all the text, illustrations and software found in the printed version. Some special features include:

- Versatile search capabilities.
- Audio clips of a variety of Amateur Radio modes and activities.
- Bookmarks that allow easy return to topics most often used.
- Pages can be printed or saved for use in other Windows applications.
- Zoom in and out – see the drawings, photos, and text enlarged or reduced.
- Hypertext Links to find definitions quickly.

QST View CD-ROMs

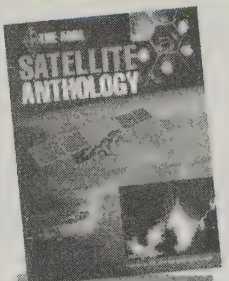
From the moment ARRL Periodicals CD-ROMs became available, members have been clamoring for more. QST View CD-ROMs include back issues of QST in convenient, space-saving CD-ROM format. Each page – all the ads, articles, columns and covers – has been scanned to provide a black-and-white image that can be read on your computer screen or be printed.

Easy-to-use software included on the CD allows you to:

- Search for articles by title and author.
- Select a specific year and issue and browse individual articles or columns.
- Each set of CDs has an index to aid in finding the page or section of the issue you want to view or print.

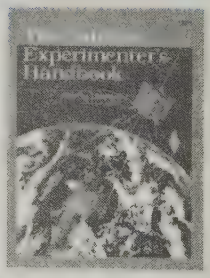
1990-94	Retail $39.95
1985-89	Retail $39.95
1980-84	Retail $39.95
1975-79	Retail $39.95
1970-74	Retail $39.95

Satellites and Space



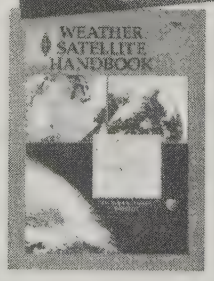
Satellite Anthology, 4th Edition

What will the new f3D satellite do, anyway? Which amateur satellites are easiest to use? What equipment and antennas do I need? You'll find the answers – and a great deal more – in this compilation of articles from QST, the AMSAT Journal and the World Wide Web. A perfect introduction to the excitement of space communications! **$12**



Satellite Experimenter's Handbook

Widely recognized as the best book available on the ham satellites, the Satellite Experimenter's Handbook has the information you need to get on or enhance your enjoyment of the amateur satellites. You'll find an immense store of valuable data on the active satellites, plus a history of the amateur space program, ground station equipment and antennas, orbits, tracking, weather and TV satellites, and more. **$20**



Weather Satellite Handbook

A popular and easy-to-use reference for anyone interested in viewing our world from space. The revised and expanded 5th edition features an interface project that allows you to capture fascinating images from various weather satellites and HF WEFAX broadcasts (a kit is available). You'll learn how weather satellites function, how to build or modify your own receiving equipment and how to buy or build the right antennas. **$20**. **Companion software** (revised for the 5th edition of the book) available for IBM PCs and compatibles. **$10**

ARRL BOOKSHELF

ARRL TECHNICAL BOOKS

AIM	Antenna Impedance Matching
DB	Data Book
DN	W1FB Design Notebook
FSIR	First Steps in Radio
HK	Hints and Kinks
ITRFD	Intro to Radio Freq. Design
LBD	Low Band DXing
MEM	Microwave Experimenter Manual
NAN	Novice Antenna Notebook
OM	Operating Manual
PDOYA	Yagi Design
QRP	QRP Classics
RADIODESIGN	Radio Design IBM Software
REFLECTIONS	SWR Theory
RFI	Radio Frequency Interference
RSGB-AWARDS	Awards Book
RSGB-OP MAN	Amateur Radio Operating Manual
RSGB-RCH	Radio Communication Handbook
RSGB-VHF	VHF / UHF Handbook
SA	Satellite Anthology
SEH	Satellite Experimenters Handbook
SSD	Solid State Design
SSS	Spread Spectrum Source Book
TFRB	The FCC Rule Book
TLT	Transmission Line Transformers
TAH	ARRL 1997 Hardcover Handbook
OARS	Operating an Amateur Radio Station
WSH	Weather Satellite Handbook

ARRL LISTINGS

DXCC LIST	Official ARRL DXCC List
LB	Log Book
ND	Net Directory
RD	Repeater Directory

ARRL READING

CQGS	CQ Ghost Ship
DVQTH	Death Valley QTH
DXBD	DX Brings Danger
DXCC Companion	DX Guidebook
FSTS	From Spark to Space
GCQ	Grand Canyon QSO Book
HFNH	Help for New Hams
MBQ	Murder by QRM
MORSE CODE	The Essential Language
NCJ	Bi-Monthly National Contest Magazine
NS	Night Signals
NN	Novice Notes
QRP NOTE	QRP Notebook
QST	Monthly Magazine of ARRL
SOSAM	SOS at Midnight
YVC	Your VHF Companion
FIREWATCH	Firewatch Novel
ET	Easy Target Novel

ARRL PACKET BOOKS

GTPR	Gateway to Packet Radio
PSMSA	Packet Speed, More Speed & Apps

ARRL MAPS

GRID ATLAS	Grid Locator Atlas
GRID MAP	Grid Locator Map
USCAM	U.S. Call Area Map
WM	World Map

ARRL ANTENNA BOOKS

AB	17th Antenna Book
ACVOL4	Antenna Compendium Vol. 4
AN	W1FB Antenna Notebook
NAN	Novice Antenna Notebook
RSGB-ANT	H.F. Antenna Book
RSGB-WIRE	Wire Antennas
YAD	Yagi Antenna Design

ARRL LICENSE PREPRATION

10-15ARRL	10-15 WPM Code Tape
13-14ARRL	13-14 WPM Code Tape
15-22ARRL	15-22 WPM Code Tape
5-10 ARRL	5-10 WPM Code Tape
GENVIDEO/Soft	Gen Class Video / IBM Exam
TECHVIDEO/Soft	Tech Class Video / IBM Exam
NYT II	Study Guide for the No-Code Technician License
LM-TECHNICIAN	Technician Class Manual
LM-GEN-II	General Class Manual
TAACLM	Advanced Class Manual
TAECLM	Extra Class Manual
TFRB	FCC Rule Book
YITMC	Introduction to Morse Code

Study Aids

AMECO

100-T	Junior Code Tape
101-T	Senior Code Tape
102-01	Amateur Radio Theory Course
103-T	Advanced Code Tape
104-T	Extra Class Code Tape
105-QT	General Class QSO Course Tape
106-QT	Extra Class QSO Course Tape
12-01	General Class Test Manual
17-01	Extra Class Test Manual
26-01	Advanced FCC Test Manual
27-01	Novice FCC Test Manual
28-01	Technician Class Test Manual
EN-1	Novice Class Exam
78-01	Codeless Technician Manual

GORDON WEST / W5YI

GWTM	No Code Technician Manual
GWGM	General Class Study Manual
GWAM	Advanced Study Manual
GWEM	Extra Class Study Manual
NCV	No-Code Video Seminar - Tech
NCVP	No-Code Video Seminar - Tech, manual, rule book
HCV	Gorden West Ham Class Video
GWNT	Novice Code Teacher Tapes
GWGT	General Class Code Refresher Tape
GWET	Extra Class Code Refresher Tape
GWN6	Novice Learing Code Tape
GWG6	General Speed Builder Code Tape
GWE6	Extra/Commercial Code Course Tape
GWNW	Novice Class Theory Tapes
GWTW	Technician Class Theory Tapes
GWGW	General Class Theory Tapes
GWAW	Advanced Class THeory Tapes
GWEW	Extra Class Theory Tapes

KB6MT

CODE	Novice to 21 WPM Code Training Tapes
IT	Instant Theory Tape
IT-NCTECH	Instant Theory No Code Tech
IT-NOVICE	Instant Theory Novice
IT-TECH	Instant Theory Tech
IT-GEN	Instant Theory General
IT-ADV	Instant Theory Advanced
IT-EXTRA	Instant Theory Extra
WORDS	Code word course

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

CQ Books / Publications

1997ALMANAC	CQ 1997 Ham Radio Almanac
ARC1997	Amateur Radio Calendar 1997
BAUBAU	Building & Using Baluns and Ununs
BG-97	1997 Equipment Buyers Guide
LMOA	Lew McCoy on Antennas
QUADANTENNAS	Quad Antennas
RCC1997	Radio Classics Calendar 1997
TPROM	The Packet Radio Ops Manual

ARTSCI

ALPHA&ZULU	Ride Airwaves w/Alpha & Zulu
AMAT HB	Amateur Handbook
FA	Federal Frequency Book
LUM	Lost Users Manual
NASFG	Shortwave Guide
RTM	Guide to Radio Mods
RA	Radio Atlas
USRG	US Repeater Guide

RADIO PUBLICATIONS

ANTENNA HB	Antenna Handbook
BEAM	Beam Antenna Handbook
INTERFERENCE	Interference Handbook
QUAD	All About Cubical Quads
SHORTWAVE	Better Shortwave Reception
VERTICAL	All About Vertical Antennas
VHF	All About VHF Amateur Radio
WIRE	Low-Cost Wire Antennas
COMPLETE DX	Complete DX'er by W9KNI

Amateur Directories

CALLBOOK

USCB	North American Callbook
DXCB	International Callbook
RAC-CD	National and International Callbook CD-ROM–See page 54

QRZ! Ham Radio CD-ROM

QRZ! Ham Radio's CR-ROM for DOS and Windows is the perfect information source for Hams and SW listeners. For details see page 54.

Magazines

73	73 Monthly Magazine
CQ	CQ Monthly Magazine
CQVHF	CQ VHF Magazine
BG	Equipment Buyers Guide
Popular	Popular Communications
QST	QST Monthly Magazine
MT	Monitoring Times
WRN	World Radio News

Short Wave Listening

MT	Monitoring Times Monthly
PASSPORT	Passport to World Radio
WRTVH	World Radio TV Handbook

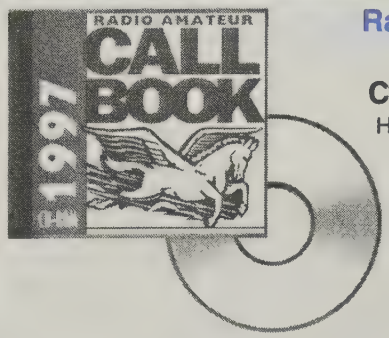
Scanner Books

HRO stocks many books that contain scanner frequencies for localities around the country. Contact your nearest HRO store for details.

Internet On-line Ordering 24 Hours a Day
http://www.hamradio.com

CD-ROMs

SOFTWARE STUDY AIDS



Radio Amateur Callbook CD-ROM 1997

HRO Price $49.95

This is the most extensive radio amateur directory on the market. Incorporating both the North American and International editions of the world's most respected callbooks, it provides more than 1.3 million listings in more then 250 countries, islands, and dependencies.

By including several countries not found in other directories, the Callbook CD-ROM offers unmatched world coverage.

- Windows / DOS platform.
- Data display by callsign, last name, city, license class, issue, and expiration dates.
- Search U.S. stations by callsign, last name, and city.
- Search international by callsign, last name, city. Text search by name, street, city, province, or region after selecting country.
- Unique sound output of Morse code alphabet can be used by the blind or anyone who wants to learn Morse code.
- Windows clipboard tool for single label or applications. Import data into logging spread sheet, word processor, or label printing program. Logging program interface available.
- Listings of clubs, "Then and Now" call letter changes, military, and silent keys.
- Text files listing prefixes by countries (40 zones), DXCC countries list, census of amateur prefixes, QSL bureaus, reciprocal operating agreements, 10-meter beacons, 6-meter beacons, international "Q" signals, and much more.

Ham Radio CD-ROM for DOS and Windows

HRO Price $19.95

Ham radio and short wave enthusiasts will be pleased that QRZ now supports Windows 3.1and Windows 95.

Of particular interest is the new QRZWIN call sign search-and-retrieval software that allows easy access to more than 600,000 names and addresses of US and Canadian hams. The full name, address and FCC license information is included with each record.

QRZWIN provides editing and printing functions which make custom mailing lists easy. Import the information to your favorite word processor for advanced formatting and list processing. It features an open database with documentation so users can create their own custom applications.

Several ham radio logbook utilities support the QRZ database. DOS routines are included for non-Windows users.

Also included on the CD-ROM are the complete text to the FCC approved license examinations, questions and answers, current rules and regulations, and 100's of shareware utilities.

License Studies

W5YI

Ham Operator Education Software

Use you IBM or compatible to study and review No-Code through Extra Class License material. The package includes nine diskettes covering all theory and Morse code for all Ham licenses. Includes both 3.5" and 5.25" diskettes. Requires 256K and DOS 2.11 or later. **HRO Price $39.95**

General Radiotelephone Operator

Pass your GROL fast with computer aided instruction. Complete with 495 page fully illustrated manual. Take sample tests right at your PC, or print them out. Requires 3.5" drive, 256K and DOS 3.2 or better. For IBM PCs or compatibles. **HRO Price $59.95**

NEW!

AMECO

Learning software is now available for PC compatible computer systems. Instructional packages are available for all licence classes, Novice through Extra.

Prepare for the written exams using your own computer. All possible exam questions are covered word for word as they will appear on the actual exam.

The software includes: user-friendly interface, mouse support, colorful graphs, all required schematic diagrams, and full time on-line help. The software quizzes you on every topic and a sample VEC test can be seen on the screen or printed.

An Ameco FCC Test Manual is included as part of every Test Package. Call for the HRO Price on the Test Packages.

Morse Code

GGTE

Morse Tutor GOLD

Morse Tutor Gold software for the IBM PC / XT / AT and compatibles comes on 3.5" or 5.25" disks.

The eleven menu-driven lessons use a flash card technique to teach Morse code. Each session can be set up to teach only the specific lesson, a random character drill, or a random word drill using only those characters already learned. The last lesson is a random QSO generator based on a large information pool. This lesson is similar to code exams.

The program does standard CW spacing or the Farnsworth method. You may enter your own text from the keyboard or import ASCII files. The character tally is also shown. **HRO Price $29.95**

Mac Education

MacHam Radio™ Study Guides

Study for the Amateur Licenses with the aid of your **Apple® Mac®** Computer. Material is taken from the latest FCC question pools. It includes diagrams on screen and is EVERYTHING you need to pass your exams! Test on screen or printed!

You will be VERY impressed with these programs.

MAC Software

No-Code Technician $39.95

General, Advanced or Extra Each Version Just $34.95

NEW! HF + 6M Version

World's First HF Rig with CW Auto Tune and DSP Built-in

Kenwood makes Digital Signal Processing technology available to everyone with the all-new TS-570D and TS-570S. Imagine a DSP radio that you can operate in the shack, the car, or on a remote DX island. These are the first DSP rigs that meet the needs of today's HF operator within a budget. From the first moment that you hear the incredibly clear and powerful audio and operate the new, common-sense ergonomic design, you will realize the TS-570D or TS-570S is the HF rig built for you.

The TS-570D and TS-570S offer the world's first CW AUTO TUNE feature which enables automatic zero-beating for CW operation. Advanced Kenwood design and features coupled with traditional Kenwood HF performance make the TS-570D/570S a masterpiece that you can proudly operate. If you have been waiting for a new DSP HF radio with performance at an affordable price, wait no more.

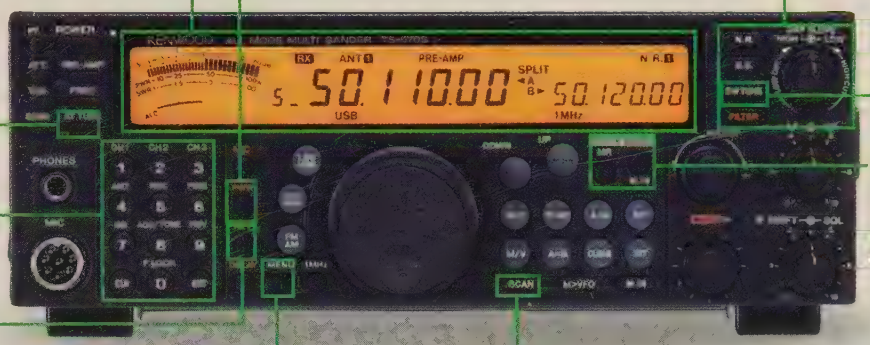
- **The RCP-2 Radio Control Program also allows the HF operator to design and program multiple radios with custom settings while conveniently saving them to a PC file for future use.**

Large LCD display features a 4-stage dimmer while the **7-digit alphanumeric sub-display** provides menu mode guidance, split frequency display and digital filter selection options. Easy-to-read **S/PWR/COMP/SWR/ALC** meters and an operating guidance feature help to greatly simplify operation.

16-bit DSP technology delivers superb audio quality on both transmit and receive. **Noise reduction** (line enhancer method and SPAC), **audio equalization** (voice/transmit equalizer and speech processor), **slope tuning** and **automatic IF filter bandwidth selections** can be operated with a touch of a button.

Power output can be set between 5 ~ 100 watts in 5 watt increments. 5 watt setting is ideal for QRP operation.

Preset auto antenna tuner with 22 sub-bands from 1.8 MHz - 30 MHz including 6M and memory for both antenna ports.



World's first CW Auto Tune enables automatic zero-beating for CW operation.

10-key direct frequency entry

Quick memory provides five channels for on-the-fly frequency control: **M.IN** stores data, **MR** recalls it.

Electronic keyer provides speed settings of between 0 and 100 wpm and dual key inputs on the back – one for the paddle and one for the key.

Menu system offers 46 types of functions to assist novice thru extra class operators.

A wealth of scanning capabilities enhance operability. Scan speed is variable and can be set for time-based or carrier-based resume. Scanning can work across channels, groups of 10 channels, all except locked out channels, or it can be programmed to scan a frequency range between two channels.

• Mobile/fixed station size (10-5/8 x 3-3/4 x 10-11/16 in) • Heavy-duty design • CW message memories
• CW reverse mode • Full break-in and semi break-in • High-speed 57600 bps PC control • Dedicated packet port

TS-570D / TS-570S

HF Transceiver **HF + 6M Transceiver**

With a half century of engineering and design experience to draw upon, Kenwood is changing the future of HF communications technology. High quality TX-RX audio reproduction with extremely effective DSP interference reduction delivers pleasing performance to your ear and over the air. You will also enjoy the large, easy-to-read LCD display with a built-in on-screen operator guidance system for simple operation. Features like 10-key direct frequency entry with new "soft-touch" keys, auto-antenna tuner, 100 to 5 watt for QRP operation, variable scanning speed, built-in CW keyer, ANT 1-ANT 2 ports, IF shift control, RS-232C com-port, 100 memory channels, CW reverse, optional VS-3 voice synthesizer and DRU-3A digital recording unit make the TS-570D or TS-570S the radio for you.

JQA REGISTERED FIRM

ISO 9001
JQA-1205

INTERNET

Kenwood News & Products
http://www.kenwood.net
Kenwood Bulletins
ftp://ftp.kenwood.net

KENWOOD
Amateur Radio Products Group
97ARD-1610

KENWOOD COMMUNICATIONS CORPORATION
AMATEUR RADIO PRODUCTS GROUP
P.O. Box 22745, 2201 E. Dominguez St., Long Beach, CA 90801-5745, U.S.A
Customer Support/Brochures (310) 639-5300
KENWOOD ELECTRONICS CANADA INC.
6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

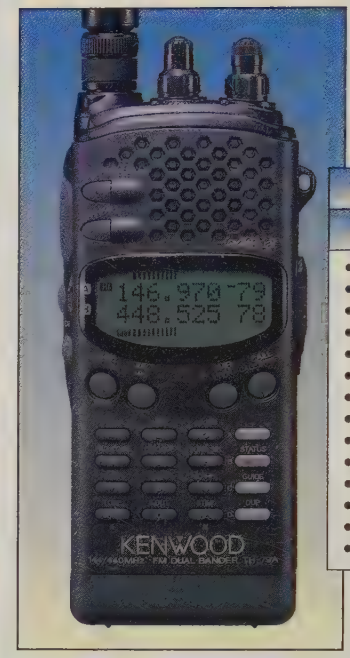
The Ultimate Choice in Amateur Radio

TM-261A

FM Mono Band Mobile

- 144 MHz operation
- 62 memory channels
- 6 character alpha-numerics
- DTMF memory for autopatch
- 50 watts output power
- Multi-scan capability
- Backlit microphone
- MIL-STD 810C and 810D
- Dual menu system
- Repeater reverse switch
- DTSS selective calling
- Built-in CTCSS encoder
- Wireless cloning

"Super! I can use alphanumeric memories to store names, call signs, and repeaters on my TM-261A."



TH-79A(D)

FM Dual Bander

- 144 MHz / 440 MHz operation
- Dual receive on 2 bands
- Dot-Matrix LCD display
- 7 character alpha-numerics
- 82 memory channels
- Operator's Guide function
- DTMF memory for autopatch
- Wireless cloning
- PC programmable
- MOS FET power module
- High performance antenna
- CTCSS encode/decode
- Remote control feature
- Airband receive

"Great! My TH-79A(D) receives on 2 bands at the same time. Comes in a 5W version too."

TH-22AT

FM Mono Bander

- 144 MHz operation
- User friendly operation
- 40 memory channels
- Compact rugged design
- DTMF memory for autopatch
- MOS FET power module
- Direct DC input
- Luminescent DTMF keypad
- Multiple scan modes
- Auto battery saver circuit
- Built-in CTCSS encoder
- Battery voltage indicator
- 3 or 5 watt versions

"Outstanding! Loud, clear audio and easy to use."

Kenwood is known worldwide for outstanding products. With over 50 years of design, engineering and manufacturing experience, it is easy to see how Kenwood sets itself apart from the competition. In the world of Amateur Radio, Kenwood has a strong and rich heritage based on one simple truth. We do our very best to build the best. Kenwood Amateur Radios not only have the look of a well designed and manufactured product with a superior "quality feel", but also have the same world famous Kenwood reputation on the inside. Now surprisingly affordable!

JQA REGISTERED FIRM

ISO 9001
JQA-1205

INTERNET

Kenwood News & Products
http://www.kenwood.net
Kenwood Bulletins
ftp://ftp.kenwood.net

KENWOOD
Amateur Radio Products Group
97ARD-1612

KENWOOD COMMUNICATIONS CORPORATION
AMATEUR RADIO PRODUCTS GROUP
P.O. Box 22745, 2201 E. Dominguez St., Long Beach, CA 90801-5745, U.S.A
Customer Support/Brochures (310) 639-5300
KENWOOD ELECTRONICS CANADA INC.
6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

NEW!

New, Cool and Blue!

TM-V7A Dual-Band Mobile

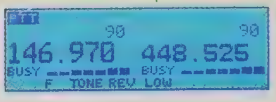
Kenwood continues its renowned dual-band mobile tradition with the revolutionary TM-V7A. Large, cool-blue reversible LCD, ergonomic control panel, 280 memory channels, and computer programmability are just some of the many exciting features. Kenwood's engineering expertise, advanced design reputation and outstanding quality are amply evident in the fun-to-operate TM-V7A dual-band mobile transceiver.

- **Alphanumeric memory capability allows you to recall up to 180 memory channels by name. Frequency, memory channel number, and name (up to 7 characters) are displayed simultaneously. Store call signs, repeater names, cities, etc.**

Backlit mic with convenient operator functions including power on/off, volume and squelch controls and direct frequency entry.
Built-in CTCSS, DTSS and page functions
Guide mode serves as an on-board instruction manual
Heavy-duty construction inside and outside
Data connector for 1200/9600 bps packet
Detachable control panel (2-1/16 x 4-1/8 in.) with 4 multifunction keys
5 cool-blue reversible LCD with positive/negative display modes
147-channel visual scan (spectrum display)
Programmable memory for storing five operating profiles
Capable of receiving two frequencies on the same band (F-5)
Stores 280 memory channels
KENWOOD
FM DUAL BANDER TM-V7
146.970
448.525

TM-V7A

FM Dual Bander



Performance, quality, and innovation briefly describe the new TM-V7A dual-band mobile. Look at the easy-to-read large blue LCD display! Storing all of your favorite frequencies is a snap with 280 memory channel capacity (alphanumeric to 180). Unique programmable memory function allows you to store virtually all operating data such as frequency, offset, DTSS code, display setting, and beep function in 5 special channels. Visual scan allows you to graphically see band activity near the current operating frequency. Other features include a user-friendly menu and guidance system, 1200/9600 bps packet, AM aircraft band receive, CTCSS, DTSS, paging, backlit DTMF microphone, detachable control panel (with cable option), and voice synthesizer (VS-3 option). The TM-V7A is truly in a class by itself.

JQA REGISTERED FIRM

ISO 9001
JQA-1205

INTERNET

Kenwood News & Products
http://www.kenwood.net
Kenwood Bulletins
ftp://ftp.kenwood.net

KENWOOD
Amateur Radio Products Group
97ARD-1611

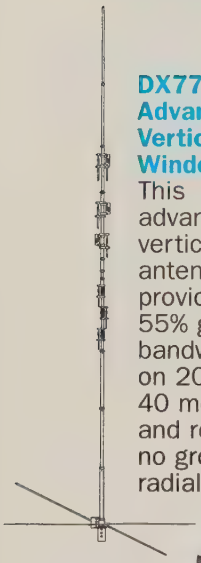
KENWOOD COMMUNICATIONS CORPORATION
AMATEUR RADIO PRODUCTS GROUP
P.O. Box 22745, 2201 E. Dominguez St., Long Beach, CA 90801-5745, U.S.A
Customer Support/Brochures (310) 639-5300
KENWOOD ELECTRONICS CANADA INC.
6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

PROFESSIONAL STANDARDS ASSURE AMATEUR SATISFACTION

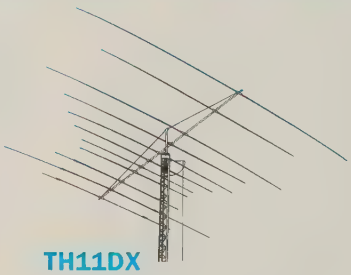
Innovation • Value • Customer Service

From the world's leading antennas and rotators to warranties, after-sale support and responsive, knowledgeable customer service, Hy-Gain by Telex is the amateur's preferred choice for exceptional performance and extraordinary reliability.

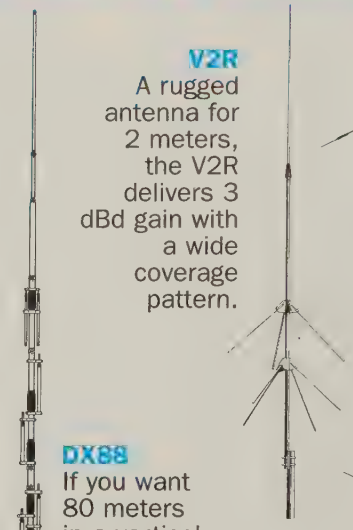
Highlighted here is just a sampling of innovative products available from Hy-Gain. While examining this catalog, keep your eyes peeled for detailed information about many more Hy-Gain products and accessories.



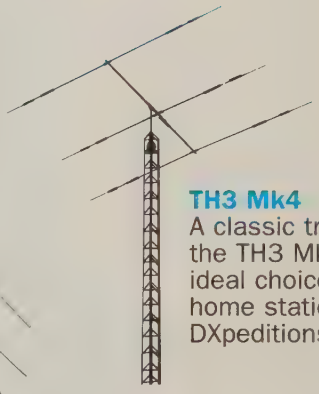
DX77 Advanced Vertical Windom
This advanced vertical antenna provides 55% greater bandwidth on 20 and 40 meters, and requires no ground radials.



TH11DX
This uniquely designed antenna provides the frequency coverage of a log periodic, **plus** the performance of a monobander.

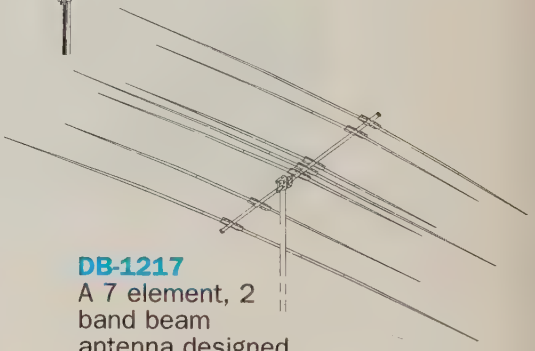


V2R
A rugged antenna for 2 meters, the V2R delivers 3 dBd gain with a wide coverage pattern.

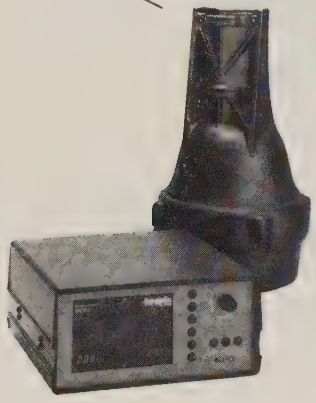


TH3 Mk4
A classic tribander, the TH3 Mk4 is an ideal choice for home stations and DXpeditions.

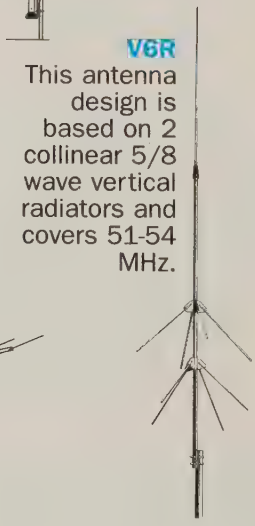
DX88
If you want 80 meters in a vertical, this is your antenna. Better bandwidth than found in add-on kits.



DB-1217
A 7 element, 2 band beam antenna designed for operation on the 12 and 17 meter amateur bands, and packaged for DXpeditions.

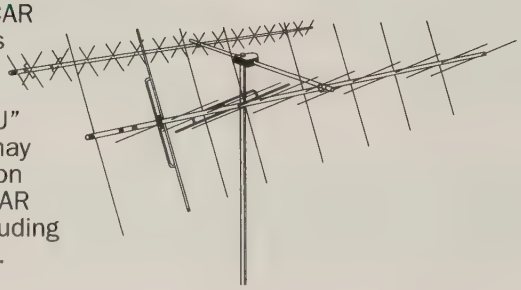


Ham V with DCU-1 Digital Control System
The Ham V is designed for medium communications antenna arrays of up to 15 sq. ft. (1.4 m2) wind load area. The **DCU-1** features digital and analog displays with six presets, automatic brake delay, motor slow down, automatic calibration and programmable center of rotation.



V6R
This antenna design is based on 2 collinear 5/8 wave vertical radiators and covers 51-54 MHz.

OSCAR LINK
Hy-Gain's OSCAR LINK antennas are ready for Phase 3D on the "V" and "U" bands. They may also be used on the other OSCAR satellites, including the new JAS-2.



hy-gain® by Telex

Your Performance Advantage

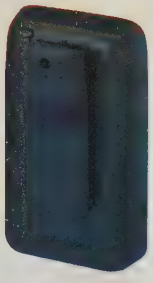
Telex Communications,® Inc.
8601 East Cornhusker Highway
Lincoln, NE 68505 USA
Phone: 402-467-5321 • FAX: 402-467-3279
E-mail: hygain@telex.com
Web: http://ourworld.compuserve.com/homepages/hygain

Full Line of *quality* Handheld Accessories...

NICKEL METAL HYDRIDE BATTERY PACKS & CHARGERS

- ✔ **No** memory effect
- ✔ 50-100% **more** capacity than same size NiCad
- ✔ **Light** weight
- ✔ Flat Discharge Curve
- ✔ **Small** Size
- ✔ Environmental **friendly**
- ✔ Many other models available

1800mAh



MH-FNB-V47
For Yeasu FT-50R/10R/40R
Vertex VX-10
1800mAh, 7.2v
Spring Loaded Clip included!

NEW !

MH-BP-173
For Icom
T7A/Z1A/T22A/W31/W32
650mAh, 9.6v

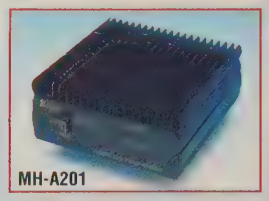
MH-101 series NiMH/NiCD rapid smart chargers for popular radios!

POWER AMPLIFIERS

Maha's new **docking boosters** are the affordable solution to your weak signal problems. The MH-A300 series docking booster utilizes a compact amplifier, and with the appropriate adapter, you will boost the 5 watt output power of your handheld to the higher output power of a more expensive mobile radio while maintaining the portability of your handheld. You can instantly switch from a powerful mobile radio to a portable handheld with ease! Put your radio on Maha's new MH-A300 series docking booster and see what it can do for you!

MH-A201

- ✔ 144/440MHz Dual Band
- ✔ 2m: 45W 70cm: 35W
- ✔ Full duplex operation
- ✔ Auto band selection
- ✔ Super High Quality



Many other models available!

USE AS A HT DOCKING POWER SUPPLY

SPEAKER/MICROPHONES

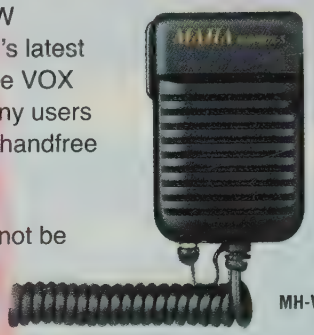
MH-800S:
For Alinco/Icom/Standard Yaesu

MH-800K:
For Kenwood

You are looking at the best speaker/microphone in the industry. The MH-800 series consists a 500mW super speaker, and a crystal clear microphone. It can sound as good as your rig! Put the Maha MH-800 series speaker/mike on your handheld and experience the difference!

$19.95
MHO Special Price

Look at this great super 500mW speaker/mike! It also got Maha's latest patented VOX circuitry, too! The VOX feature is sure a plus while many users such as yourself, now require handfree operation! It is also very safe!



- ✔ Super noise immunity. Will not be activated in a 6000rpm running car.
- ✔ Maha VOX provides maximum protection against accidential transmission.
- ✔ Use as a PTT too! Instantly switch from PTT to VOX.
- ✔ Special designed clip.

MAHA

"Your Supplier, Your Partner, Your Friend! "

2841-B Saturn St. Brea., CA 92821. Tel: 1-800-376-9992 Fax: (714)985-9221 Web: http://www.maha-comm.com/

IC-707 Extra Class Performance at a Novice Price!

• 100 W (AM 25 W) • All Mode • Simple to Use! Big, Well Spaced Keys and Dials, and a Large Backlit LCD Display • 500 kHz–30.0 MHz General Coverage Receiver • Minimum Number of Keys • Front Facing Speaker • Large Display • Rugged Construction, Compact Size – Great for Mobile Operation • 100% Continuous Duty Cycle • 32 Memory Channels • PC Programmable • 13.8 V DC • **ICOM's Most Affordable HF!** • 9.5"(W), 3.7"(H), 9.4"(D), 9.1 lb

IC-706MKII* HF + 6M + 2M, All Mode

– Easy to Use as a Base or Mobile Rig! Still the World's Smallest HF!–

• HF+6M (100 W) SSB/CW/AM/FM/RTTY • NEW: 2M (20 W) SSB/CW/FM/WFM/RTTY, Slots for 2 Optional Crystal Filters, Optional Tone Squelch, Enhanced 0.03 – 200 MHz Broadband All Mode Receive, Sub Dial for Easier Access to RIT/Second VFO, Individual Band Change Key, Crossband Split, Large Speaker, Quiet Cooling Fan, and Much More! • SSB/CW/AM Narrow Filter Options • 101 Alphanumeric Memories • Noise Blanker • IF Shift • Preamp/Attenuator • CW Keyer • CW Pitch Control • Full Break-In (QSK) • Speech Processor • VOX • LCD Display with 1 Hz Readout • Easy-to-Use Menu System • Tone Encoder Built-In • 2 Antenna Connectors • Voice Synthesizer (opt. UT-102) • Detachable Control Panel** • 6.6"(W), 2.3"(H), 7.9"(D), 5.5 lb

Take Control of Your Hobby

With ICOM PC Programming

LCD Control Window!

Use soft key commands to adjust on-screen controls, memory names, spectrum scope, and more.

IC-756 HF+6M with Adjustable IF-DSP!

• 4.9" Concentrated Information LCD Dot Matrix Display with Spectrum Scope, Alphanumeric Memories and Soft Key Buttons • 100 W Stable Output Power (40 W AM) • SSB/AM/FM/CW/RTTY • Automatic Antenna Tuner • 101 Memory Channels • Automatic IF Notch Filter • Level/Width Variable Noise Blanker • PSN Modulation • Selectable Audio Peak Filter • Dual Watch • Twin Pass Band Tuning • Power MOS FET's • New High Performance Memory Keyer • Morse Code Mode Announcements to Aid the Visually Impaired • PC Programmable with CI-V Capability •12 V Operation • Speech Synthesizer • **Very Affordable Price!** • 13.4"(W), 4.4"(H), 11.2"(D), 23.1 lb

IC-775DSP Pull Out Signals No Analog Rig Can!

• IF-DSP (Digital Signal Processing) Tx/Rx • 200 W Stable Output Power • SSB/AM/FM/CW/RTTY • Built-In Heavy Duty Power Supply & Auto Antenna Tuner • Auto IF Notch Filter • Adjustable DSP Noise Reduction • Level/Width Variable Noise Blanker • PSN Modulation • Audio Peak Filter • Dual Watch • Twin Tuning Knobs • Twin Pass Band Tuning • Front Panel Control Dual Antenna System • Power MOS FET's • CW Pitch Control • Electronic & Memory Keyer • Front & Back CW Keying Jacks • 1 Hz Tuning & Display • 99 Memory Channels • Selectable Pre-Amp & RF Attenuator Levels • Built-In CTCSS Tone Encoder • VOX • Noise Blanker with Adjustable Level & Width • AGC with Adjustable Time Constant • 16.7"(W), 5.9"(H), 15.4"(D), 36.8 lb

IC-R8500 Next Generation HF/VHF/UHF World Receiver!

• Wide Frequency Range: 100 kHz – 2000 MHz (cellular blocked; unblocked OK to FCC approved users) • All Modes • Superior Receive Characteristics • Built-In CI-V and RS-232C Hardware for Advanced Computer Control • IF-Shift • Audio Peak Filter • Noise Blanker (SSB/AM)• RF Attenuator • 1000 Memory Channels • 13 Different Tuning Steps • 3 Antenna Connectors • S-Meter Squelch (in addition to ordinary noise squelch) • Selectable AGC Time Constant • High Stability (<30 MHz: ±100 Hz, V/UHF: ±3 ppm) • 12 VDC/120 VAC • **Very Affordable Price!** • 11.3"(W), 4.4"(H), 12.2"(D), 15.4 lb

No-Code Techs!
Work the NEW AMSAT Phase 3-D Satellite! (Due 6/97)

IC-821H 2M/440 MHz Advanced Satellite & Digital Base Station • All Modes • Easy to Use!

• Continuous Adjustable Transmit Power • Sub Band Transmit • 9600 Full Compatibility Out of the Box • 160 Memories • Noise Blanker & IF Shift on Main & Sub Bands (independent main/sub Rx) • Built-In Electronic Keyer • Satellite Tracking with Doppler Correction • Compact! 9.5"(W), 3.7"(H), 9.4"(D), 11.0 lb

"By far the easiest to use satellite radio on the market today. In less than 10 minutes after unpacking the 821H, I was on the air at 9600 baud with KO-23" – Michael Wyrick, N4USI, AO-27 Control Operator

©1997 ICOM America, Inc. The ICOM logo is a trademark of ICOM, Inc. *This device has not been approved by the Federal Communications Commission. This device is not, and may not be, offered for sale or lease, or sold or leased until the approval of the FCC has been obtained. **Optional equipment required. All stated specifications are subject to change without notice or obligation. All ICOM radios significantly exceed FCC requirements limiting spurious emissions. HROS97Y

Most New ICOM Radios are

PC Ready!

with select ICOM options

IC-T22A/IC-T42A (2M/440 MHz) Single Bander

• Fun, Shirt Pocket Small and Easy to Use! • Large Alphanumeric Display • Wide Rx Coverage • 5 W @ 13.5 V (3 W Out of Box) • Air Band Receive • 80 Memory Channels (40 w/Alpha Display) • 2.3"(W), 4.3"(H), 1.1"(D), 10.9 oz

IC-T7A 2M/440 MHz Dual Bander

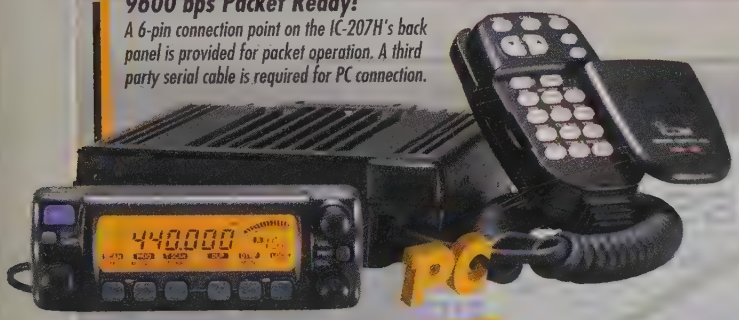
• Dual Bands at a Single Bander Size & Price! • Very Easy to Use—No Function Key • 4 W (2M) /3 W (440) @ 13.5 V • "Intuitive" Help Display • CTCSS Encode/Decode • **Very Affordable!** • 2.5"(W), 4.8"(H), 1.1"(D), 11.3 oz

IC-W32A 2M/440 MHz Dual Bander

• 5 W Out of the Box • No Function Key • PC Programmable • 200 Memories with Alphanumeric Display, Messaging & Paging • "Intuitive" Help Display • Backlit Display and Keypad • Wide Band Rx (Including Air Band) • V/V, V/U, U/U Operation with VHF/UHF Tuning Knob Exchange • Encode/Decode • PC/Radio-to-Radio Cloning • 2.2"(W), 4.9"(H), 1.2"(D), 12.0 oz

9600 bps Packet Ready!

A 6-pin connection point on the IC-207H's back panel is provided for packet operation. A third party serial cable is required for PC connection.



Download Frequency Info

Download up to 40 frequencies from a PC into the IC-T2A, as shown in the background photo. It's a great tool for planning your communications ahead of any trip or outing. Optional equipment required.

Work One Band at a Time

The large display clearly shows which band is in use. With one touch of the blue band key, toggle between 2M & 440 MHz.

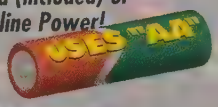
NEW! IC-207H 2M/440MHz Dual Bander

• 2M (45 W)/440 MHz (35 W) • Super Compact Detachable Control Panel** with Big Keys, Big Knobs and a Big Display • Work One Band at a Time • 9600 Baud Ready • Wide Band Rx (Includes Airband) • CTCSS Encode/Decode • **Very Affordable!** • 5.5"(W), 1.6"(H), 8.1"(D), 2.6 lb

NEW! IC-T2A 2 Meter Single Bander

• 4.5 W • Rugged Aluminum Chassis & Polycarbonate Case • Built-In Tone Squelch with Pocket Beep and Tone Scan • 8 Programmable Keys • 43 Memory Channels • Uses Ni-Cd or Alkaline Power (8 Ni-Cd "AA" Batteries Included) • **ICOM's Most Affordable Handheld!** • 2.3"(W), 5.5"(H), 1.3"(D), 10.9 oz

Ni-Cd (included) or Alkaline Power!



IC-2000H 2M Intermod Fighter!

• Wide Band Rx (118–174 MHz) • Highly Intermod Resistant • 50 W of Power • 50 Memory Channels with Alphanumeric Display • AM Aircraft Rx • Full/Program Scan • **ICOM's Most Affordable Mobile!** • 5.9"(W), 2.0"(H), 5.9"(D), 2.4 lb

IC-2710H 2M/440 MHz Advanced Dual Bander

• 2M (50 W)/440 MHz (35 W) • Detachable Control Panel** • Fast Scanning • 220 Memory Channels • PC Programmable • CTCSS Encode (decode optional) • RF Attenuator • 8 DTMF Memory Switches • V/V, U/U Simultaneous Rx • Built-In Duplexer • 3 Selectable Power Levels: 50(35), 10, 5 • 5.5"(W), 1.6"(H), 8.4"(D), 3.1 lb

Price Reduced!

Optional Infrared Wireless Mic

*Works with both the new IC-207H** and the more advanced IC-2710H. Enjoy cable-free operation on the GO! (HM-90)*

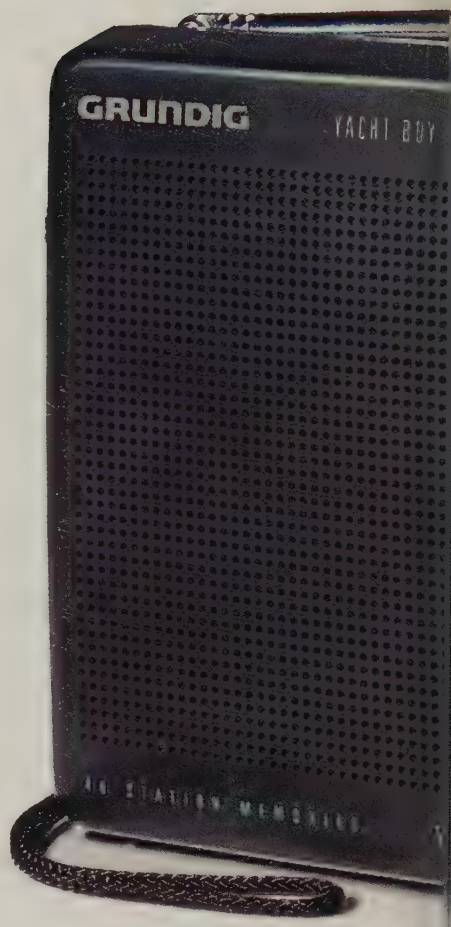
Get workin' those airwaves! Call or visit your HRO dealer today!

ICOM®

PC Powered!

http://www.icomamerica.com

ANYPLACE. ANYWHERE. ANYTIME.



Travel the airwaves with Grundig's portable digital Yacht Boy 400. Listening has never been easier… the BBC commentary from London, the news from Berlin, Beijing, the Balkans and more. Imagine!

Only Grundig with its reputation for world class electronics could offer a radio so advanced and compact: AM/FM Stereo/Shortwave, digital tuning, auto scan and 40-memories, clock alarm and timer. Also includes *Grundig Shortwave Listening Guide*, batteries, external antenna,

YACHT BOY 400

Features:

- Shortwave/AM/FM and longwave
- Continuous shortwave from 1.6–30 MHz
- Clock, alarm and timer
- 40 randomly programmable memories
- Phase–lock–loop tuning
- Size 7-3/4"L x 4-5/8"H x 1-1/4" W
- Weight: 1 lb. 5oz

GRUNDIG

Call for information: U.S. 1-800-872-2228 or 415-361-1611
Canada 1-800-637-1648 • Fax: 415-361-1724

Leading the way in HF technology.

FT-1000MP
Revolutionary All-Mode HF Transceiver with EDSP™

•Enhanced Digital Signal Processing (EDSP™) Noise Reducer, RX/TX waveform Contour shaping control, Digital Notch plus IF Notch, Digital CW Narrow Filters, Microphone Equalization • Shuttle Jog™ Tuning Enhancement • Directional Tuning Scale for CW/Digital Modes and Clarifier Offset Display • Selectable Antenna Jacks • Programmable Tuning Steps • 100W PO • Dual In-band Receive with Separate S-meters • Built-in Collins® SSB Mechanical Filter • CW Electronic Keyer with two Key jacks • CW Spot • Automatic Antenna Tuner • 100-117, 200-234V AC and 13.5V DC power inputs • DC version available • 99 Memories.

FT-1000/D
Elite-Class All-Mode HF Transceiver

• 200W PO • Dual Receive • 108 dB dynamic range • Cascaded IF Filters • Direct Digital Synthesis (DDS) • IF Width/Shift/Notch • CW Spot • CW Audio Peaking Filter • CW Electronic Keyer with two Key jacks • IF Noise Blanker • Automatic Antenna Tuner • RF Speech Processor • Front panel RX Antenna selector switch • Two large fly-wheel-weighted tuning knobs • 99 Memories.

FT-920
All-Mode HF/6m Transceiver

• High-Performance 33MIPS* DSP • HF + 50 MHz w/100 Watts-all Bands • MOSFET PA Finals • High Speed Auto Antenna Tuner (works on RX & TX) • Omni-Glow™ Dual Display • Twin VFO Knobs • FET RF Amplifier for High & Low Bands • Digital Voice Memory System • Quick Memory Bank (QMB)Frequency System • 127 Memories. *Million Instructions Per Second

FT-900C/AT
Deluxe Compact HF Transceiver

• Detachable Front Panel Design • 100W PO • Built-in Collins® SSB Mechanical Filter • Automatic Antenna Tuner • IF Shift/Notch • Keypad Frequency Entry • Duct Flow Cooling System • Digital Metering • Adjustable CTCSS Tones • 100 Memories.

FT-840
High Performance Compact HF Transceiver

• High Receiver Dynamic Range • Dual Band Stacking VFOs with Direct Digital Synthesis (DDS) • 100W PO • IF Shift • IF Noise Blanker • Digital Mode Interface • CW-Reverse feature • Adjustable Repeater CTCSS Tones • Optional (External) Automatic Antenna Tuner • 100 Memories.

FT-600
Multi-Purpose HF SSB Transceiver

Frequency Range: RX: 50 kHz - 30 MHz; TX: 160-10M • 100W PO • MIL-STD 810 Rating • Alphanumeric Omni-Glow™ LCD Display • Keypad Frequency Entry • Optional CW (500 Hz) and AM (6 kHz) filters available • Dual Watch • Front-mounted Speaker with High Audio Output • PC Programmable • 100 Memories (in 4 banks of 25).

YAESU

Choice of the World's top DX'ers

For the latest Yaesu news, hottest products, visit us on the Internet! http://www.yaesu.com

©1997 Yaesu USA, 17210 Edwards Road, Cerritos, CA 90703, (562) 404-2700
Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details. Collins is a Registered trademark of Rockwell International Corporation

"The quick-release remote front panel gives you so many installation options."

"And with dual receive you can talk on one band, and listen on another!"

"Plus, the high-tech Enhanced Smart Search™ is great for finding repeaters --and you can watch it all on the dual display."

"Looks like Yaesu did it again!"

FT-8100R

Compact Dual Band Mobile

Now a dual-bander that remotes and is easy-to-use, without sacrificing the features you want!

With its quick-release, remote front panel system, the FT-8100R combines high-performance dual-band features in a simple-to-operate rugged mobile built to the endurance standards of commercial radios. The result is installation flexibility and industry-first, "must-have" advantages!

Use dual receive (V+V, U+U or V+U), or talk on one band while listening on another. Watch Yaesu's exclusive Enhanced Smart Search™ automatically seek out and load active frequencies--great for finding new repeaters while traveling.

Get wide receive coverage--from 110 to 550 MHz and 750 to 1300 MHz* for public safety, marine, aircraft, and weather channels. Enjoy up to 50 Watts of VHF power output (35 Watts on UHF) with High/Medium/Low choice on each band, and "plug and play" 1200 or 9600 bps packet. Utilize 208 memory channels--the greatest available on any remote mobile--to store repeater offset, CTCSS tone, packet baud rate, and power level.

Yaesu's popular Omni-Glow™ display provides a wide field of view, and includes a DC voltage meter. Quickly program, or clone frequency memories with optional Windows™ PC programmable ADMS-2D.

"User-friendly" describes the streamlined front panel layout. Eight clearly-marked keys, and separate Volume/Squelch controls for each band, make operation easy. And the backlit DTMF microphone includes 3 user-programmable keys...but no awkward keypad cover!

Don't sacrifice high-performance features in your dual-band mobile installation. Get the easy-to-use FT-8100R at your Yaesu dealer now!

YAESU

...leading the way.™

For the latest Yaesu news, hottest products, visit us on the internet! http://www.yaesu.com

Features

- Frequency Coverage
  - RX: 110~550 MHz
  - 750~1300 MHz*
  - TX: 144~148 MHz
  - 430~450 MHz
- Detachable Front Panel (remotable w/optional YSK-8100)
- 3 Power Output Levels
  - 2m 50/20/5 Watt
  - 70cm 35/20/5 Watt
- 208 Memory Channels
- Enhanced Smart Search™
- CTCSS Encode
- Built-in Duplexer
- S-Meter Squelch
- Dual Receive (V+V,U+U,V+U)
- Crossband Repeat (bidirectional or one-way)
- PC Programmable w/optional ADMS-2D
- Digital Battery Voltage Display
- Auto Power Off (APO)
- Omni-Glow™ Display
- 1200/9600 bps Packet Compatible
- Alternating-Band Memory Selection (ABMS)
- DTMF Autodialer (6 Memories)
- Time Out Timer (TOT)
- Accessories: Consult your local Yaesu dealer.

*Cellular & 900 MHz Cordless Phone frequencies blocked.

©1997 Yaesu USA, 17210 Edwards Road, Cerritos, CA 90703, (562) 404-2700
Specifications subject to change without notice. Specifications guaranteed only within the 2-m and 70-cm amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details.

2m/70cm Mobiles **FT-2500M/FT-7400H**

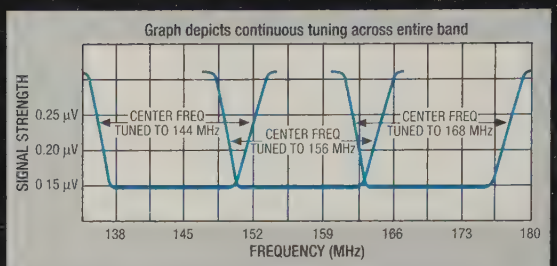
Advanced Track Tuning, Mil Spec, true FM. All in one radio!

Outside, you can easily see why the FT-2500M stands up to the shock and vibration like no other. We engineered the first mobile radio to meet the rigid standards set by the U.S. Military back in the '80s, and that same critical design is in the FT-2500M. From the simplified front panel, rubber coated knobs, durable pebbled finish coating, and huge Omni-Glow™ display to the one-piece die-cast chassis, the FT-2500M can take whatever you throw at it!

Inside, the electrical circuitry meets standards so uncompromising the FT-2500M can respond like no other radio. Built-in 3-Stage Advance Track Tuning (ATT), automatically retunes from 140 to 174 MHz permitting consistent receiver sensitivity across the entire band.

But there's more. Like alpha-numeric display capability! Lets you program a frequency or a 4-character name on any of the 31 memories. With three selectable power output levels and up to 50 watt power output, the FT-2500M extra large heat sink means forced air cooling is not necessary. And, as a bonus, Yaesu's exclusive backlit DTMF mic comes with every FT-2500M.

Experts say the FT-2500M is the only commercial-grade amateur radio available. So, for tough manufacturing standards, inside and out, with true FM clarity, and outstanding performance, the FT-2500M is your mobile.



3-Stage Advance Track Tuning (ATT) – The exclusive 3-Stage Advance Track tuning front end automatically adjusts band width sensitivity across the entire receiver range, while maintaining selectivity specifications. ATT significantly reduces interference from inter-modulation and front end overload.

Specifications

- **Frequency Coverage:**
  FT-2500M
  RX: 140-174 MHz
  TX: 144-148 MHz
  FT-7400H
  RX/TX: 430-450 MHz
- Rugged Military Spec Design
- Advanced Track Tuning (ATT)
- Selectable Alpha-Numeric Display
- Omni-Glow™ Display, largest available
- Power Output:
  FT-2500M 50/20/5 Watts
  FT-7400H 35/15/5 Watts
- Flip Up Front Control Panel hides seldom used buttons
- Backlit DTMF Mic
- 31 Memory Channels
- CTCSS Encode Built-in
- Automatic Power Off (APO)*
- Time-Out Timer (TOT)*
- Manual* or Automatic Backlighting Adjustment
- **Accessories:**

FP-800	20 Amp HD Power Supply w/ Front Mounted Speaker
FRC-6	DTMF Paging Unit
FTS-17A	CTCSS Decode Unit
SP-4	External Mobile Speaker w/ Audio Filters

*FT-2500M

YAESU
Performance without compromise™

"Just look inside. Military spec really means something to Yaesu!"

"A QST review says 'the FT-2500M exhibited superior 10 MHz offset IMD dynamic range of 103 db!'"

"This Advanced Track Tuning practically eliminates intermod!"

"Yaesu did it again."

US MILITARY APPROVED MIL-SPEC 810

FT-3000M

High-Powered 2-m FM Transceiver
Feature-rich, 70 full watts of TX power, and built to the tough performance standards you've come to expect from Yaesu.
FEATURES • Frequency Coverage Wide Band Receive-- RX:110-180 MHz, 300-520 MHz, 800-999 MHz* TX:144-148 MHz • AM Aircraft Receive • MIL-STD 810 Rating • Interactive Programming • High Power Output: 70 Watts, plus 50, 25 and 10 Watts • Quick-Touch™ Dual Concentric Control Knob • Twin Cooling Fans • ADMS-2 Windows™ Programmable • Digital Coded Squelch (DCS) • 81 Memory Channels • Auto Range Transpond System™ (ARTS™) • 1200/9600 Baud Packet Compatible • Smart-Search™ • Alphanumeric Display • Dual Watch • Full line of accessories
*800 MHz Cellular blocked

© 1995 Yaesu USA, 17210 Edwards Road, Cerritos,CA 90703 (562) 404-2700
Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details.

Ultra Compact Dual Band Handheld **FT-50RD**

One tough little dual bander!

Features

- Frequency Coverage
  Wide Band Receive
  RX: 76-200 MHz, 300-540 MHz, 590-999 MHz*
  TX: 144-148 MHz, 430-450 MHz
- AM Aircraft Receive
- MIL-STD 810 Rating
- Digital Coded Squelch (DCS)
- 112 Memory Channels
- 12V DC Direct Input
- High Speed Scanning
- Alphanumeric Display
- CTCSS Encode/Decode
- Auto Range Transpond System™ (ARTS™)
- Dual Watch
- Direct FM
- High Audio Output
- ADMS-1C Windows™ PC Programmable
- Four Battery Savers:
  Automatic Power-Off (APO)
  Receive Battery Saver (RBS)
  Selectable Power Output (SPO)
  Transmit Battery Saver (TBS)
- Time Out Timer (TOT)
- 2.5 and 5 Watt Versions Available
- Built-in Digital Voice Recording System (DVRS)
- Full line of accessories

NOW WITH BUILT-IN DELUXE KEYPAD

"You notice how loud this HT's audio is?"

"Yeah, it's Mil Spec tough like a commercial HT."

"Easy to operate, small, great price!"

"Yaesu did it again!"

US MILITARY APPROVED MIL-SPEC 810

The foremost in top-performing, durable, dual band handhelds now includes the FTT-12 DTMF keypad with CTCSS enc/dec, DCS enc/dec, DVRS and paging/coded squelch. Manufactured to rigid commercial grade standards, the FT-50RD is the only amateur dual band HT to achieve a MIL-STD 810 rating. Already a winner: the deluxe keypad makes this stand-out HT even better! Water-resistant construction uses weather-proof gaskets to seal major internal components against the corrosive action of dust and moisture. And, the rugged FT-50RD withstands shock and vibration, so throw it in with your gear!

Exclusive features set the FT-50RD apart, too. Wide Band Receive includes 76-200 MHz (VHF), 300-540 (UHF), and 590-999 MHz*. Dual Watch checks sub-band activity while receiving on another frequency, then when a signal is detected, shifts operation to that frequency. Digital Battery Voltage displays current operating battery voltage. Digital Coded Squelch (DCS) silently monitors busy channels. Auto Range Transpond System™ (ARTS™) uses DCS to allow two radios to track one another. And, the FT-50RD is ADMS-1C Windows™ PC programming compatible, too. To round out the FT-50RD, it has four battery savers, and super loud audio—remarkable in an HT this size.

A reliable companion where ever you go, the FT-50RD is one tough little dual bander with all the features you want!

YAESU

...leading the way SM

For the latest Yaesu news, hottest products, visit us on the Internet! http://www.yaesu.com

FT-10/40R
Ultra Compact Handhelds
VHF or UHF. Similar to FT-50RD including MIL-STD 810, and other exclusive features.

© 1997 Yaesu USA, 17210 Edwards Road, Cerritos, CA 90703 (562) 404-2700
Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details. *Cellular-blocked

Get A Grip On Standard's Hand-Helds!

C156A

C156A 2m Transceiver

STANDARD'S QUALITY! STANDARD'S FEATURES! EVERYBODY'S PRICE!

- 5 watts high power
- 100 memories
- 135 to 174MHz extended receive
- Clear Dot-Matrix display with alpha-numeric ID
- CTCSS Encode built-in
- 9 DTMF memories
- Scanning-busy, pause or hold
- Auto repeat offset
- Built-in 1750 Tone Burst
- Auto-Power-Off 30, 60, 90 or 120 min

C508A

C508A 2 Meter & 440MHz Dual Band

VHF & UHF IN YOUR SHIRT POCKET

- 280 mW with 2-AA batteries
- 60 memories
- 100-180, 340-400 & 400-480MHz extended receive (including AM aircraft band)
- CTCSS Encode/Decode
- 22 menu selections
- Scanning-busy, pause or hold
- Freq steps 5, 10, 12.5, 15, 20, 25, 30 and 50

C528A
C628A
C228A

C228A 2M & 220MHz Deluxe Twin-Band HT

- 5W (2M and 220) at 12 VDC
- 40 memories (20 + 20 "limited" memories)
- 130-174 and 200-244MHz extended receive
- 1 Auto Dial memory
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

C188A
C288A

C188A 2 Meters The Slim-Line HT

- Fits in your shirt pocket!
- 5W at 12 VDC
- 40+ memories (or optional 200+memories with snap-in chip)
- 115-174MHz extended receive (including AM air band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

C288A 220 MHz Slim-Line HT

- Same as C188A but for the 1 1/4 meter band
- 115-249 MHz extended receive
- TX 220 MHz band

C468A
C168A

C168A 440MHz The Deluxe small HT

- 2 Meters
- The Deluxe small HT 5 watts at 12 VDC
- 40+ memories (or optional 200+ memories with plug-in chip)
- 115 to 174MHz extended receive (including AM aircraft band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

C468A 440MHz The Deluxe small HT

- 5 watts at 12 VDC
- 40+ memories (or optional 200+ memories with plug-in chip)
- 400-474MHz extended receive
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

C528A 2M & 440MHz Deluxe Twin-Band HT

- 5W (2M and 440) at 12 VDC
- 40 memories (20 + 20 "limited" memories)
- 130-174 and 300-474MHz extended receive
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

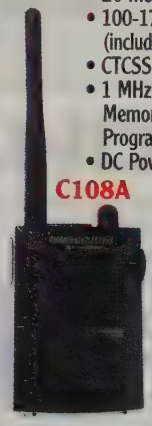
C628A 70 cm & 23 cm

- Same as C528A but for the 70 & 23 cm band
- 5W 70 cm and 1W 23 cm at 12 VDC

C558A

C558A 2 Meter & 440MHz Elegance, Balance and Twin-Band Performance

- 5W at 12 VDC
- 40+ memories (opt. 200+ memories with plug-in chip)
- 115-174 & 340-474MHz extended receive (including AM aircraft band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold



C108A

C108A 2M & Very Small HT

- 20 memories
- 100-174 0MHz extended receive (including AM aircraft band)
- CTCSS Encode 23 tones
- 1 MHz, Full Range, Memory, and Memory-Scan-Memory: Programmable for Pause & Busy
- DC Power: 2 alkaline AA penlight cells

C178A

C178A 2 Meters (+low power 440) The Deluxe Dual-Band HT

- Single-Band Price
- 5W (2M) at 12 VDC & 50mW (440)
- 40+ memories (opt 200+ with plug-in chip)
- 110-174 & 320-474MHz extended Rx (including AM air band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

STANDARD'S ON THE WEB!

HTTP://WWW.STDRADIO.COM

SR STANDARD®

For more information on this and other STANDARD products, please contact your authorized STANDARD dealer. Specifications, price and features are subject to change without obligation or notice. Standard Amateur Radio Products, Inc. P.O. Box 48480, Niles, Illinois 60714. Tel (773) 763-0081 Fax (773) 763-3377

SANGEAN T.M.

"The World's Most Popular SHORTWAVE RECEIVERS"

The Incredible ATS-909

WRTH

WRTH Radio Industry Award
Best Shortwave Portable
1996/7

WRTH is a trademark of Weston-Guplill Publications and is used with express permission

WORLD 23 YEARS LEADERSHIP
1974 to 1997

- AM/FM Stereo/Short Wave Reception
- PLL Dual Conversion Receiver
- 306 Memories ■ Full RDS Reception
- 28 SW Pages Factory Programmed
- 42 World Cities Factory Programmed
- 5 Tuning Methods ■ Auto–Tune
- ATS Automatic Memory Preset
- USB/LSB Single Side Band Select
- Dual Time System ■ Adjustable Sleep Timer
- RF Gain Control ■ Priority Key
- Wide/Narrow Filter ■Reset Switch
- 3 Separate Timers ■ Lock Switch

And Much, Much, Much More!!!!

The Last Shortwave Receiver You'll Ever Need To Buy

SANGEAN T.M. ATS-818CS

PLL Synthesized World Band Receiver With Programmable Cassette Recorder

- All SW Bands
- BFO For SSB/CW
- 45 Memory Presets
- Continuous AM Receiver
- Radio/Clock Alarm
- Dual Time Display
- 5 Tuning Methods
- Adjustable Sleep Timer
- Wide/Narrow Filter
- RF Gain Control

ATS-818 Identical To ATS-818CS Without Cassette Recorder

SANGEAN T.M. ATS-606A

World's Smallest Full Featured AM/FM/Stereo Shortwave Receiver

- Ultra Compact Size
- All Sw Bands
- 1 KHZ Fine Tuning
- 5 Tuning Methods
- ATS Auto Tune
- 54 Memory Presets
- Dual Time Display
- DX/Local Switch
- Dual Alarm Timer
- Adjustable Sleep Timer
- Memory Scan/Play
- Count Down Timer

SANGEAN T.M.
AMERICA, INC.

2651 Troy Avenue, South El Monte, CA 91733
Tel: (818) 579-1600 Fax: (818) 579-6806
Shortwave "Hot Line", Toll Free 1-888-SANGEAN

Call HRO for *all* MFJ, Ameritron, Mirage, Vectronics

MFJ

MFJ ENTERPRISES, INC.

300 Industrial Park Road,
Starkville, MS 39759

Our 25th Year!

(601) 323-5869; 8-4:30 CST, M-F
FAX: (601) 323-6551
E-Mail: mfj@mfjenterprises.com

No Matter What™
Your MFJ product comes with MFJ's famous *No Matter What*™ one year *unconditional* warranty. MFJ will repair or replace your MFJ product (at our option) *no matter what* for a full year.

Visit our web site: http://www.mfjenterprises.com

MFJ HF/VHF SWR ANALYZER™ with resistance meter

MFJ-259 $199.95

The MFJ-259 is the world's most popular HF/VHF SWR Analyzer! Instantly read your antenna SWR and RF resistance from 1.8 to 170 MHz. Diagnose a wide range of antenna problems. You get *four* instruments in one -- 10-digit LCD frequency counter, RF signal generator, *SWR Analyzer*™ and *RF Resistance Meter*™. Measure antenna resonant frequencies and 2:1 SWR bandwidths. Adjust mobile antennas, antenna tuners and matching networks in seconds.

MFJ Tunable DSP Filter

MFJ-784B $214.95

MFJ *tunable* super DSP "brick wall" filters knock out interference and noise by up to 57 dB. *Automatic* notch eliminates heterodynes. Adaptive noise reduction. Works with all voice, CW, data signals. Plugs between radio and speaker/phones.

MFJ-1020B, SWL Indoor Antenna . . . **$69.95**
MFJ-1025, Noise Canceller **$129.95**
MFJ-1724B, 2 M Mag mount ant **$14.95**
MFJ-1750, 2 M ground plane ant **$19.95**
MFJ-8100K, World Band Radio kit . . **$59.95**
MFJ-1796, 6 Band Vertical Antenna . **$189.95**

MFJ-949E Deluxe 300 Watt Tuner

MFJ-949E $129.95

More hams use MFJ-949s than any other antenna tuner in the world! Match nearly any antenna. Has lighted peak and average reading Cross-Needle SWR/Wattmeter, full size dummy load, 8 position antenna switch, 4:1 balun, heavy duty inductor switch. Covers 1.8 to 30 MHz. Handles 300 watts PEP SSB. Scratch-proof cabinet.

MFJ-105B, 24 Hr. Quartz wall clock **$19.95**
MFJ-281, *ClearTone*™ Communication spkr . . . **$9.95**
MFJ-407C, Deluxe Morse Keyer **$69.95**
MFJ-557, Code practice Oscillator **$24.95**
MFJ-704, Low Pass Filter **$39.95**
MFJ-493, 32K Menu driven memory keyer . . **$129.95**

MFJ-989C 3KW Roller Inductor Antenna Tuner

MFJ-989C $299.95

The rugged MFJ-989C handles 3 KW PEP SSB and covers 1.8 to 30 MHz including all MARS and WARC bands. MFJ's new *AirCore*™ Roller Inductor, three-digit turns counter and spinner knob gives you exact inductance control for absolute minimum SWR. Has massive transmitting capacitors, super antenna switch, 3 KW current balun, built-in dummy load, Cross-Needle Meter and More!

MFJ pocket size Morse Code Tutor with LCD display

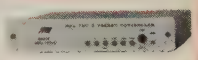
MFJ-418 $79.95

Learn Morse code fast any where, any time with this tiny *MFJ Pocket Morse Code Tutor*™! MFJ-418 gives you a large LCD display that reads out letters, numbers and punctuation in plain English. *See code as it's sent!*

MFJ's proven beginner course takes you from zero code speed to solid copy fast. QST rate MFJ tutors "the clear choice for beginners". Follows ARRL/VEC format. Change speed 3-60 wpm.

Practice copying realistic plain English QSOs, random words, letters, prosigns, FCC exam and much more! You'll never run out of practice!

MFJ VHF/HF Packet TNCs



MFJ-1270C $114.95

MFJ-1270C is *the world's most reliable packet TNC* -- many work 24 hours a day without failure! Fully TAPR TNC-2 compatible, VHF and HF operation, free AC power supply. *Enhanced* mailbox with auto/reverse mail. GPS compatible, KISS interface.

MFJ-9406X, 6 M SSB Travel Radio . **$239.95**
MFJ-260C, 300 Watt dry dummy load **$29.95**
MFJ-945E, Mobile Tuner, 6M **$89.95**
MFJ-1116, Multiple DC power outlet .. **$44.95**
MFJ-812B, 2M/440 MHzSWRWtmtr ..**$29.95**
MFJ-432, Voice Keyer **$99.95**

MFJ 300 Watt Roller Inductor Tuner

MFJ-969 $169.95

New MFJ-969 has MFJ's superb *AirCore*™ Roller Inductor and continuous 6 Meter thru 160 Meters coverage! All the features of the popular MFJ-949E: *QRM-Free PreTune*™, 8 position antenna switch, full size dummy load, lighted Cross-Needle Meter, 4:1 balun and much more!

AMERITRON®

. . . the high power specialist

Suggested list pricing, call HRO for quotes.

ALS-500M, $799. No tune Solid State 500 Watt Mobile Amplifier. 3½x9x15 inches.
ALS-600, $1299. No tune Solid State FET 600 Watt Amplifier. Power supply included.
AL-811,$649. 600 Watt Linear Amplifier. Uses three tough 811A tubes, quiet ventilation.
AL-80B,$1195. Killowatt output desktop linear. *Dynamic ALC*™, heavy duty pwr. supply
AL-800, $1595. 1250 Watt, single tube *Eimac*® 3CX800A7 all band linear amplifier
RCS-8V, $149. Remote 5 position coax switch.
AL-800H, $2295. 1500Watts plus. Two tube *Eimac*® 3XZ800A7 all band linear amp
AL-82, $2095. Full legal output linear amplifier with Hypersil® power supply.
AL-1200, $2195. 2500 Watts PEP linear amp. Tough 3CX1200A7 *Eimac*® tube
AL-1500, $2695. Super power linear amp, 2500 Watts PEP. Uses herculean Eimac® tube
ATR-15, $399. *legal limit* antenna tuner. 1.8-30 MHz, SWR/Wattmeter, More.
ARB-700, $29.95. Transceiver relay buffer.

800 WATTS . . . $795

Suggested list price, call HRO for quote.

Ameritron gives you four 811A tubes, 800 Watts for the same price as the competitor's 3 tube 600 watt unit . . . why settle for less power and pay more money?

AL-811H

Only the Ameritron AL-811H gives you four fully neutralized 811A transmitting tubes. You get absolute stability and superb performance on higher bands that can't be matched by un-neutralized tubes. Ameritron mounts the 811A tubes vertically -- not horizontally -- to prevent hot tube elements from sagging and shorting out. Others, using potentially damaging horizontal mounting, require special 811A tubes to retard sagging and shorting. Full size heavy duty tank coils, full height computer grade capacitors and more!

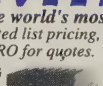
AMERITRON, 116 Willow Road Starkville, MS 39759 •(601) 323-8211 •FAX: (601) 323-6551 • ***Free Catalog***: 800-647-1800 •Visit our web site: http://www.ameritron.com

MIRAGE

. . . the world's most rugged VHF/UHF amplifiers

Suggested list pricing, call HRO for quotes.

B-5016-G $279



160 Watts on 2 Meters!

Turn your 2 Meter mobile or base into 160 Watt power houses! All modes: FM, SSB, CW. Superb GaAsFET preamp. Overdrive, high SWR, over-temperature protection.

B-2516-G, $279, Similar to B-5016-G, but for 10-35W mobile or base stations. All modes.
B-1016-G, $359, Mirage's most popular 2 M amp. For 0.2-15 Watt radios. 10 W in/160 W out.
B-215-G, $359, 2 Meter HT amp. 2 watts in/150 watts out, 3.5 watts in gives 160 watts out.
B-310-G, $179, 2 Meter HT amp. Works with all handhelds up to 8 watts. 4 watts gives in 100 watts out. *Great for the ICOM IC-706!* 15 dB GaAsFET preamp, all modes, fully protected.
A-1015-G, $389, 6M Base or Mobile amp. 150 Watts out / 10 Watts in. All modes. 50-52 Mhz..
B-34, $79, Similar to B-34-G. FM only. Less preamp. 35 Watts out for 2 Watts in.
B-5030-G, $669, for 20-60 watt 2 M mobile or base. 300 Watts of brute power for 50 watts input on all modes. Low noise GaAsFET preamp gives excellent 0.6dB noise figure, fully protected.
B-2530-G, $689, For 10-35 Watt mobile or base stations. 300 Watts out for 25 watts in.
B-1030-G, $689, Most popular dual purpose HT or mobile/base amplifier. 300 Watts out for 10 Watts in. For 0.2-15 watt transceivers. Low noise GaAsFET preamp. Heavy duty heatsink.

Dual Band 144/440 MHz Amp

BD-35 $199

Boost your dual band HT to 45 Watts on 2 Meters or 35 Watts on 440 MHz!

MIRAGE, 921 Highway 25 South, Starkville, MS 39759 •**Tech** (601) 323-8287
FAX: (601) 323-6551 •***Free Catalog***: 800-647-1800 •***http://www.mirageamp.com***

VECTRONICS®

. . . the finest amateur radio products made

Suggested list pricing, call HRO for quotes.

VECTRONICS HFT-1500
3 KW Roller Inductor Antenna Tuner with SSB Digital Bar Graph Display.
$459
•Tunes ANY antenna
•Cross-Needle SWR Wattmeter
•High Current Roller Inductor
•Covers 1.8 to 30 MHz
•Gear driven 5 digit counter
•6 position antenna switch
•Built-in 4:1 balun

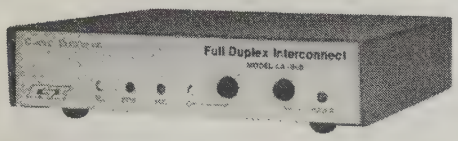
AT-100, $79. Tuned Active SWL Antenna, 300 KHz-30 MHz.
CK-200, $79. Deluxe CW Keyer with *Curtis*™ Chip.
DL-300M, $34.95. 300 Watts dry dummy load.
DL-650M, $64.95. 1500 Watts dry dummy load.
DL-2500, $199.95. 2500 Watts dry dummy load w/cooling fan.
VC-300DLP, $159. 300 W versatile Antenna tuner with *Multi48*™ inductor switch, built-in dummy load, and much more!
VC-300M, $109. Mobile antenna tuner, 300 watts SSB PEP.
VC-300D, $199. 300 Watt Deluxe Antenna Tuner with digital bar graph display for SSB operation, plus features of VC-300DLP.
HPF-1, $19.95. High Pass TVI filter 52 to 550 MHz.
HPF-2, $24.95. Deluxe HP filter reduces TVI below 30 MHz.
PM-30, $79. 1.8-60 MHz Cross-Needle SWR/Power Meter.
LP-30, $69.95. Low Pass filter up to 1500 Watts key down.
LP-2500, $139. LP filter handles up to 2500 Watts key down.

VECTRONICS, 1007 Hwy 25 South, Starkville, MS 39759 •**Voice**: (601) 323-5800
FAX: (601) 323-6551•***Free Catalog:*** 800-363-2922 • ***Web site: http://www.vectronics.com***

FREE MFJ, Ameritron, Mirage & Vectronics Catalogs - 800-647-1800

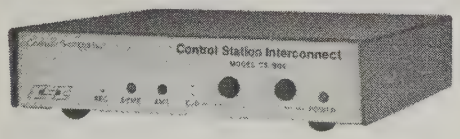
Telephone Interconnects

Connect Systems manufactures a wide range of telephone interconnects and commercial equipment. Please contact HRO or visit the CSI Worldwide Web page at http://www.connectsystems.com



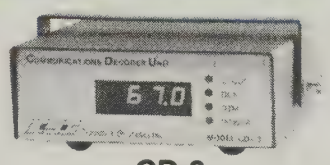
CS-800
Full Duplex Interconnect and Repeater Maker

This low cost automatic, full d-uplex patch converts your dual band base and dual band handheld or mobile into a cellular like duplex phone system. A built-in repeater maker can be enabled which makes the CS-800 suitable for private or club repeater/ auto patch use. The CS-800 comes with standard features unavailable in competing brands such as 90 memory speed dialer, redial, hookflash, CW ID, advanced toll restricts, secret toll override access code, built-in programming keypad and digital readout, tone / pulse dial out, and more. The only connections required are to the mike and speaker jacks of your rig. Fully FCC and DOC approved **Suggested List Price $485.95**



CS-900
Simplex Interconnect

This low cost automatic simplex patch converts your single band base and handheld or mobile into a powerful phone system. A 1/2 second digital voice delay prevents word clipping caused by transceiver and vox switching speed. It can be used base to mobile or through repeaters to extend range (phone-base-repeater-mobile and back mobile-repeater-base-phone). The CS-900 comes with many standard features unavailable in competing brands such as 90 memory speed dialer, redial, hookflash, CW ID, advanced toll restricts, 10 programmable toll override sequences, secret toll override access code, tone/pulse dialout and more. It can be user programmed using the built-in keypad with digital readout, over the air using DTMF, or from any telephone. The only connections required are to the mike and speaker jacks. Fully FCC and DOC approved. **Suggested List Price $485.95**



CD-2
Communications Decoder

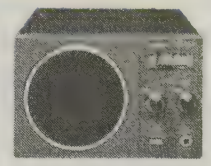
The CD-2 decodes and displays 51 CTCSS tones and 112 DCS codes originating on the channel you are monitoring. DTMF tones are decoded and displayed as they occur and are replayed a second time slowly so that you can read high speed auto-dialers etc. The gimbol makes the CD-2 easy to mount in a vehicle so you can easily determine which CTCSS tone is needed for repeaters as you travel. The RS-232 port can transport all decoded data to a computer. **Suggested List Price $325.95**

CD-2P Software

The CD-2p DOS-based application stores the time and date of each decoded CTCSS, DCS or DTMF from your CD-2. Accumulated data can be displayed or printed. Graphical displays show channel loading and more. **Suggested List Price $113.95**

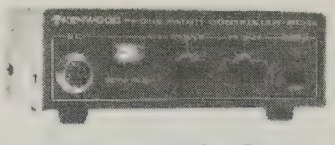
Phone Patches

YAESU



SP-767P

The SP-767P is the phone patch version of the popular SP-767 speaker. Cables are provided for connection to the current line of Yaesu HF radios. It does not include the audio filters of the SP-767 speaker. **Suggested List Price $136.95**



KENWOOD

PC1A

This phone patch is compatible with the Kenwood radio line and comes with an 8-wire cable for direct connection to the radio mike plug. The PC1A is FCC part 68 registered. It comes wired for Kenwood radios but may be used with others after proper changes in the connections. **Suggested List Price $134.95**

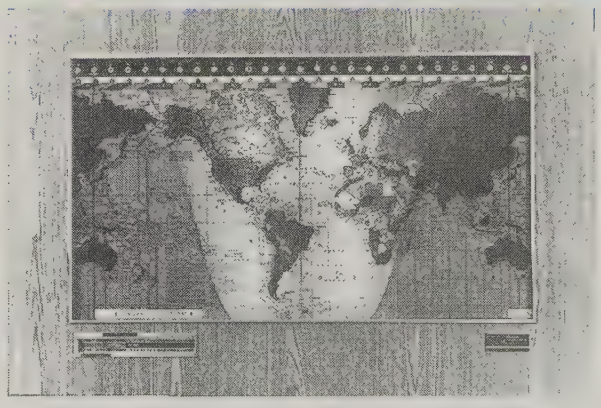
GEOCHRON

Clock

Kilburg GEOCHRON Global Time Indicator

Dimensions:
34" x 22" x 5"

Suggested List Price:
$1495.95
Call for HRO Special



Geochron is a true global time indicator. At any moment, Geochron displays the correct time everywhere in the world. It shows day of the week, date, the sun's declination and distribution of daylight and darkness on the earth's surface. Geochron is available in four (4) models and a multitude of housing finishes and trim colors. Packaged for "drop shipment" anywhere in the world via UPS or DHL. Geochron can be surface mounted on the wall like a picture or recessed using optional mounting brackets. **A "must item" for a First Class Ham Shack. Call HRO for special pricing opportunities.**

BIRD

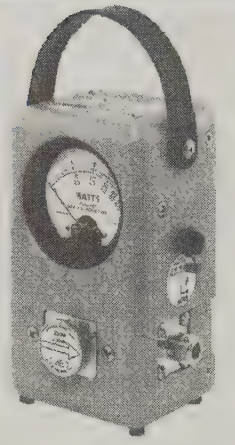
Model 43 Directional Wattmeter

This low-cost Thruline Directional Wattmeter has a history of reliability, durability and flexibility. It is a well engineered, portable insertion-type meter that measures forward and reflected CW power in coaxial transmission lines. It gives accurate RF power flow readings under any load conditions.

Model 43 is comprised of a line section and a direct-reading 3 scale meter in a rugged, corrosion-resistant aluminum case. Quick Change (QC) type connectors and a full range of plug-in measuring elements are available. (See the chart for the most popular elements. Others are available on special order.) Store two extra elements in the housing. The shock-mounted 30-microampere meter has 3 expanded scales of 25, 50 and 100 unit calibrations. It comes with type SO-239 QC connectors, but others are available. Please specify when you order.

PEP Modification Kit Model 4300-400

Your existing Bird 43 meter can be upgraded to a PEP reading meter. Order the 4300-400 modification kit. Easy installing procedures are included for most versions of the Model 43.



Model 43P Peak Reading Wattmeter

The Model 43P is a peak-reading version of the popular Model 43. The peak reading option has been installed in one of the spare element holes on the side of the meter. The meter reads CW with the switch out and PEP when the switch is in. Requires a 9 VDC battery. The frequency range and power levels are determined by the element used. No special elements are required. The meter comes with SO-239 QC connectors installed. Others are available.

Accessories

The most popular wattmeter accessories are:

- CC-1 Meter case. Space for 6 elements.
- EC-1 Element case. Space for 12 elements.

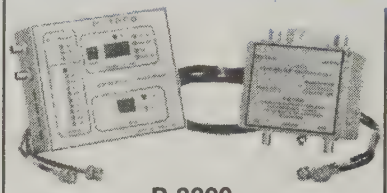
Bird Standard Elements

Power	2-30 MHz	25-60 MHz	50-125 MHz	100-250 MHz	200-500 MHz	400-1000 MHz
5 watts		5A	5B	5C	5D	5E
10 watts		10A	10B	10C	10D	10E
25 watts		25A	25B	25C	25D	25E
50 watts	50H	50A	50B	50C	50D	50E
100 watts	100H	100A	100B	100C	100D	100E
250 watts	250H	250A	250B	250C	250D	250E
500 watts	500H	500A	500B	500C	500D	500E
1000 watts	1000H	1000A	1000B	1000C	1000D	1000E
2500 watts	2500H		2500B	2500C		
5000 watts	5000H					
10000 watts	10000H					

Watt Meters

RF Applications

RF Applications watt meters have a VSWR alarm that will drop out an amplifier under high VSWR conditions.



P-3000 HF Digital Watt Meter

A remote coupler design with a power rating of 15 to 2950 watts and a VSWR from 1.0:1 to 19:1. A 5 KW model is now available. **HRO Price $299.95**

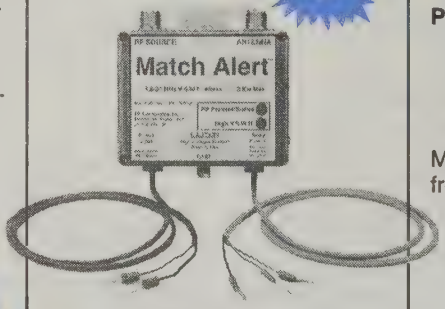
P-2000A HF Digital Watt Meter

Uses a combination of digital microprocessor technology and analog panel meters. Has an expanded VSWR scale and settable VSWR alarm. Covers 1.8 to 30 MHz up to 2000 watts. **HRO Price $299.95**

VSWR Monitor

MatchAlert™

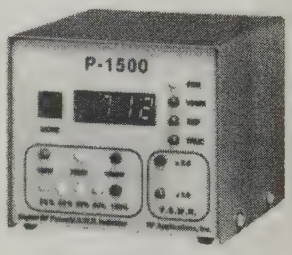
NEW!



Match Alert™ offers economical protection for HF transmitting systems. The microprocessor-based monitor gives a visual and electrical alarm if a preset VSWR level is exceeded. Eight levels are dip-switch selectable. Match Alert covers 1.8 to 30 MHz and is rated at 3000 watts. Requires 11 to 16 VDC. A power supply is not provided. A form-C relay contact rated at 1 ampere is available via a three foot wire harness. **Suggested List $129.95.** Call for the HRO Discount Price.

P-100A Digital Watt Meter

Display and control functions are similar to the P-2000A. Uses coaxial line sections and sensor elements from Bird® or Coaxial Dynamics® to measure power and VSWR over a wide range of power and frequencies. **HRO Price $239.95**



P-1500 HF Digital Watt Meter

Has a built-in coupler designed for 1.8 to 30 MHz with a power rating of 15 to 1500 watts and a VSWR from 1.0:1 to 19:1. **HRO Price $219.95**

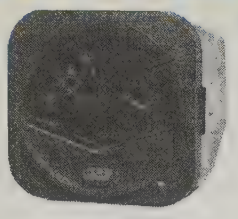
P-1 HF Wattmeter with Serial Interface

Measures power and VSWR from 1.8 to 30 MHz. The values are accessible via an RS-232 serial interface. **HRO Price TBA**

P-2000CW Audible HF Wattmeter

Provides power and VSWR measurements from 1.8 to 30 MHz. The measurements are reported in Morse Code. Adjust CW speed 5 to 40 wpm, and normal or abbreviated CW is selectable. Tuning modes make VSWR and power optimization simple for the sight impaired operator. **HRO Price $249.95**

DAIWA

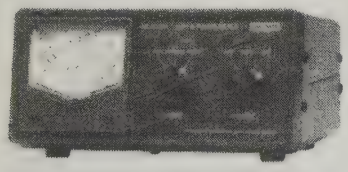


CN-460M
- Compact
- Cross Needle Meter
- Mobile / Base Use

	CN-460M
Frequency	140 - 450MHz
Power Range	15/150 W
Power Rating	150W
SWR Detection	3W minimum
HRO Prices	$99.95

CN-410M
- 3.5-150 MHz
- HRO Price $99.95

CN-465M
- 140-450 MHz
- HRO Price $99.95



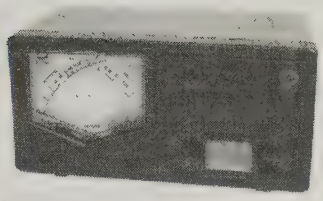
NS-660PA
- Cross needle meter
- PEP and RMS readings
- Remote sensors available

	NS-660PA
Frequency	1.8 - 150 MHz
Power Range	30/300/3 KW
Power Rating	3. KW
SWR Detection	8W minimum
Sugg. List	$199.95

NS-660A
- 1.8-150 MHz
- HRO Price $199.95

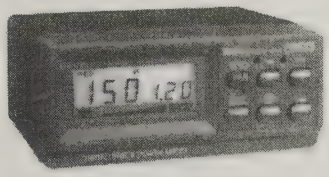
NS-663BM/BN
- 144-525 MHz
- HRO Price $229.95

Call a Helpful Ham at HRO for more information.



CN-101
- Large cross needle meter
- Forward / reverse read simultaneously
- PEP monitor function

	CN-101
Frequency	1.8 - 150 MHz
Power Range	15/150/1.5 KW
Power Rating	1.5 KW(1.8-60MHz) 1 KW (144 MHz)
SWR Detection	4 W minimum
HRO Price	$99.95



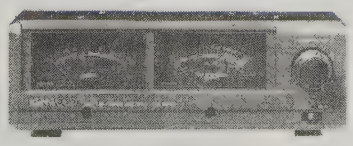
DP-800 Series
- Large LCD display
- RMS and PEP readings
- Bargraph display
- Audible Beeps

	DP-830
Frequency	1.8 - 150 MHz 140-525 MHz
Power Range	0 - 1.5 kw 0 - 150 MHz
Power Rating	1.5 KW 150 W
Sugg. List	$369.95

DP-810
- 1.8-150 MHz
- HRO Price $249.95

DP-820N
- 140-525 MHz
- HRO Price $279.95

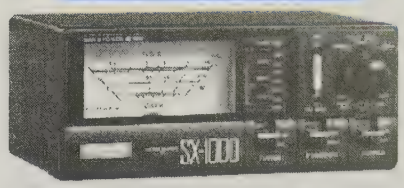
KENWOOD



SW-2100

Kenwood's SWR / wattmeter features dual meters for monitoring of SWR and forward power. There are two ranges 0-200 W and 0-2000 W with a frequency range of 1.8 - 30 MHz. **HRO Price $159.95**

DIAMOND



The Diamond RF SWR / wattmeters cover the complete range of amateur applications.

- Illuminated meters. Require 12 volts DC.
- Low insertion loss generally less than 0.2 dB in HF range and 0.3 dB at higher frequencies.
- Power measurement accuracy is generally ±10% on the higher power ranges and ±5% on lower ranges.
- Some have remote sensors for power pick-up.
- Low loss SO-239 connectors are used except for the high frequencies as noted in the table.
- Measurements are forward power, reflected power, SWR &, on selected frequencies, PEP monitor.

Model	Freq MHz	Power Ranges	Connectors	HRO Price
SX-100	1.6-60	30/300/3KW	SO-239	$149.95
SX-200	1.8-200	5/20/200	SO-239	$109.95
SX-400	140-525	5/20/200	SO-239	$129.95
SX-600	1.8-160 140-525	5/20/200	SO-239	$199.95
SX-1000	1.8-160 430-450 800-930 1230-1300	5/20/200	SO-239 Type N Type N Type N	$249.95
SX-9000	4 Band Automatic See SX-1000	5/20/200	Same as SX-1000	$399.95

Frequency Counters

Startek International

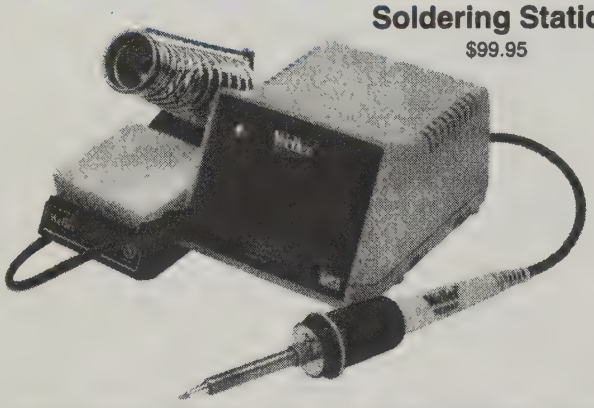
Startek's ATH™ series brings you auto trigger and hold in a pocket sized frequency counter. Super fast circuitry reads and holds a signal in less than one-tenth of a second.

Model	Description	HRO Price
ATH10	1-1200 MH w/Auto trigger	$139.95
ATH15	1-1500 MHz, High speed	$179.95
ATH30	1-2800 MHz, High speed with ATH built in	$239.95
ATH50	ATH-30 plus Hi-Z input 5 Hz to 48 MHz	$289.95
3500	10 Hz-3500 MHz, wide frequency range	$219.95

Weller®

SOLDERING EQUIPMENT

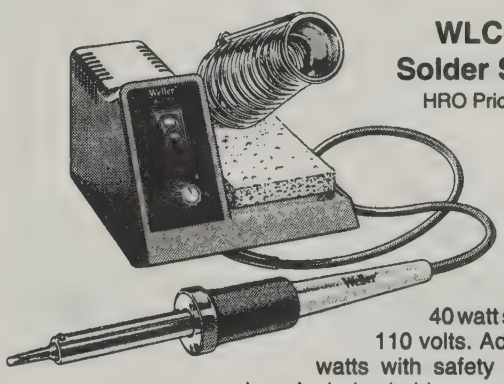
WTCPT
Soldering Station
$99.95



Weller offers a soldering station that is a must for every ham shack.

- Transformer powered with macro style, low voltage, temperature controlled soldering iron.
- Special "closed loop" method of controlling maximum tip temperature.
- Power unit housing features impact resistant plastic.
- Quick disconnect plug for iron and lighted on / off switch.
- Separate conductor grounds iron tip and terminates at third pin of power cord.
- Uses PT series tips and operates at 600°F, 700°F and 800°F.

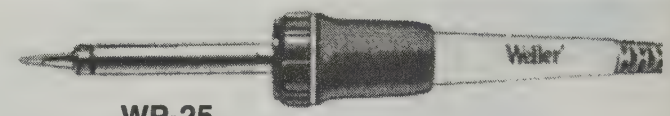
WLC-100
Solder Station
HRO Price $44.95



40 watt solder station, 110 volts. Adjustable 5-40 watts with safety guard solder iron. Includes holders, sponge and tip.

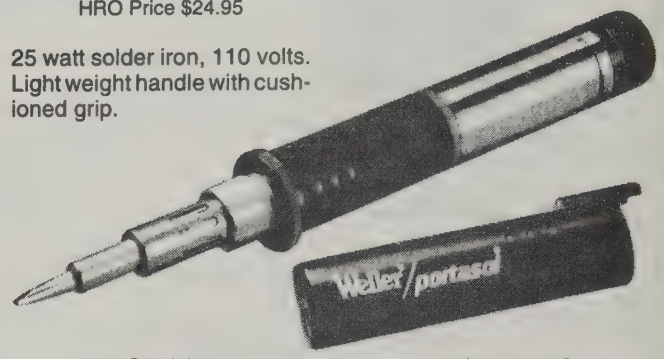
FAX Your HRO Orders 24 Hours a Day

Anaheim	714-533-9485
Atlanta	404-263-9548
Burbank	818-988-4326
Denver	303-745-7394
New Castle	302-322-8808
Oakland	510-534-0729
Phoenix	602-395-1244
Portland	503-684-0469
Salem	603-898-1041
San Diego	619-560-1705
Sunnyvale	408-736-9499
Woodbridge	703-494-3679



WP-25
Solder Iron
HRO Price $24.95

25 watt solder iron, 110 volts. Light weight handle with cushioned grip.

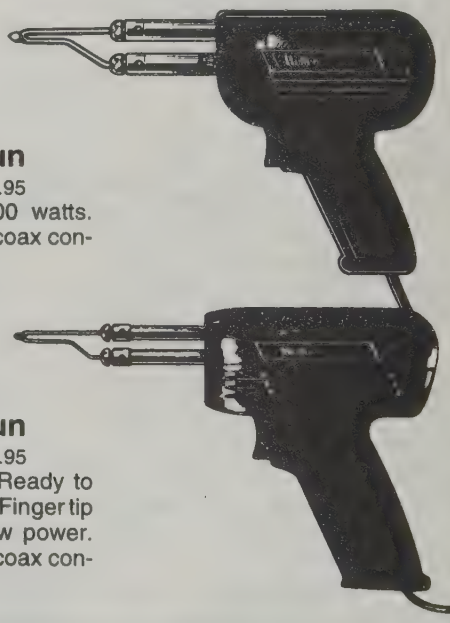


PSI-100
Self-Igniting Portable Iron
HRO Price $49.95

Self-igniting portable butane heat tool that allows antistatic soldering. Provides up to 125 watts of power.

PSI-100K
Self-Igniting Portable Kit
HRO Price $79.95

A kit that contains the PSI-100, sponge, stand and extra tips in a plastic case.



D650
Solder Gun
HRO Price $59.95

Solder gun, 200/300 watts. Great for soldering coax connectors outside.

8200
Solder Gun
HRO Price $29.95

100/140W, 110 V. Ready to solder in 6 seconds. Finger tip selection of high/low power. Great for soldering coax connectors.

RC60V
Lead-free Rosin Core Solder
HRO Price $3.99

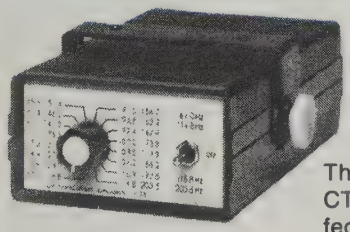
13 feet, 0.04 inches in diameter, active rosin core, lead free. In an easy to use dispenser tube.

Encoders / Decoders

COMMUNICATIONS SPECIALISTS, INC.

Tone encoders and decoders from Communication Specialists are just what you need to control your repeater or listen only to signals that are meant just for you.

	Encode	Decode	Comments	HRO Price
TS-32P	*	*	Universal design, CTCSS encoder / decoder capability for all FM transceivers	$57.95
SS-32PA	*		DIP switch programmable CTCSS encoder for all FM transceivers	$28.95
SS-32SMP	*		Micro-miniature CTCSS encoder for HTs. Programming by solder jumpers.	$27.95
TE-64	*		Multi-purpose CTCSS / Burst Tone encoder	$79.95



TE-32 CTCSS Encoder

The TE-32 multi-tone CTCSS encoder is perfect for mobile operations or the test bench. It is powered by an 11 to 25 vdc unregulated source. It has a three position range switch and a frequency accuracy ±0.1 Hz maximum over the temperature operating range. The TE-32 is low impedance (1K), low distortion, with adjustable sine wave output, 5 V peak to peak. **HRO Price $79.95**

Packet Cables

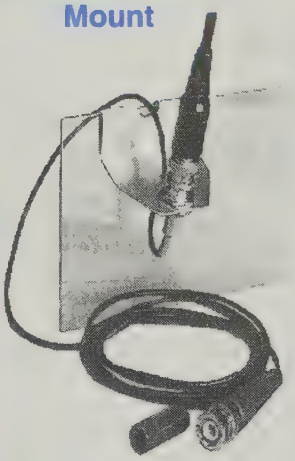
RB Enterprises

Connect your packet rig and radio with one of these pre-made cables.

Model	Description	Radio DIN (Pins)	HRO Price
MRJ-I	MFJ/AEA to Icom 281/2000	5	$19.95
MRJ-K	MFJ/AEA to Kenwood modular	5	$19.95
MRJ-Y	MFJ/AEA to Yaesu modular	5	$19.95
KD-12	Kantronics mini-DIN 1200	6	$19.95
KD-96	Kantronics mini-DIN 9600	6	$19.95

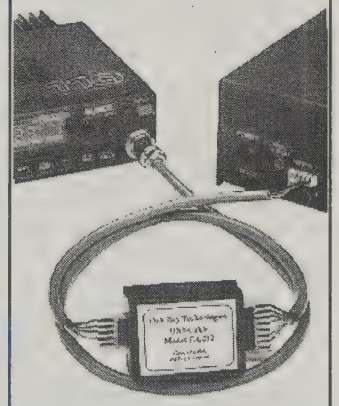
Oak Bay Technologies

Rubber Duck Mount



AM-101B

The perfect temporary antenna mount for emergencies, rental cars or vacations. Made of stainless steel, it has 15 watt power capability. Just slip over your window glass and attach your handheld antenna to the BNC connector. 6 feet of RG-174U coax provided. **HRO Price $24.95**



Universal Packet Cable

CA-232-U

UNI-Cable™ provides interface between all popular TNCs and VHF/HF transceivers. No soldering is required. It can be easily programmed by the user for 8 PIN microphone connectors. **HRO Price $34.95**

High Current Power Strips

PS-101

This high current 12 VDC power strip for the ham shack has heavy-duty steel housing construction with current handling up to 50 amps. It has 5 fused outlets, 2-30 amp and 3-20 amp. It is perfect for HF radios or those high power VHF / UHF amplifiers. **HRO Price $79.95**

PS-612M

This high current 12 VDC power strip has heavy-duty steel housing construction with current handling up to 50 amps. It has circuit breaker outputs, 3-30 amp and 3-20 amp. It is perfect for HF radios or other high power equipment. Comes with 4 feet of #8 guage wire with ring lugs. **HRO Price $64.95**

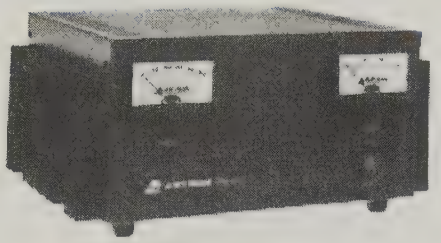
Connectors

Connect Works

Model	Description	HRO Price
B-112XC	BNC for RG-8/X Gold Pin	$3.99
BU-312	BNC to UHF Adaptr (BNC-255)	$5.99
NU-312	N to UHF Adaptr (4400)	$9.99
SB-312	SMA to BNC Adaptr	$9.99
U-245C	4 hole SO-239 Chassis Connector	$1.99
U-311	Double Male UHF (83-877)	$6.99
U-322	UHF Barrel (83-1J)	$4.99
U-332	Long UHF-UHF Barrel (83-1F)	$6.99
U-412	RT. Angle Teflon, Gold Pin (83-1AP)	$8.99
U-512C	UHF "T" (83-1T)	$6.99
UB-312	BNC to UHF Adaptr (31-28)	$6.99
UN-312	UHF to N Adptr (14000)	$15.99

POWER SUPPLIES

ASTRON CORPORATION



All of Astron's solid-state electronically regulated **Power Supplies** have fold-back current limiting to protect from excessive current and a heavy duty heat sink. Output voltage: 13.8 VDC ±.05 volts.

220 V supplies available on special order at slightly higher price.

RS-A Series Standard power supply with on / off switch. Voltage may be adjusted internally.

RM Series 19" x 5 1/4" rack-mount power supplies available with or without meters and may be variable. The new RM-60 comes with or without meters.

RS-M Series Power supply with front meters. One is for voltage and the other current.

VS-M Series Variable power supplies with separate volt and amp meters. Adjustable output voltage: 2-15 volts.

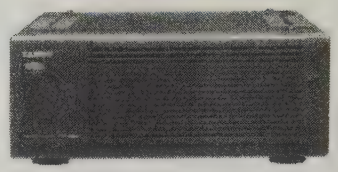
SL Series Slim Line design for low-profile looks.

SS Series High efficiency switching supplies specially filtered for use with communications equipment for all frequencies including HF. Heavy duty design, low profile, light weight and EMI filter.

ICOM

The **PS-55** is a standard duty supply with cabinet styling to match IC-735 / 728 / 729. The heavy-duty **PS-30** station supply can operate several base station units. The **PS-35** is an internal suppply designed to be installed in the IC-751 or selected VHF / UHF base transceivers. The **PS-85** is specially designed for the IC-706 compact HF rig.

YAESU



Yaesu has power supplies primarily designed for use with their HF rigs. The **FP-800** matches the FT-900 / 840 and contains a built-in speaker.

Power Supplies

Brand	Model	Cont.Duty 13.8 VDC	Intermit Duty	Height in	Width in	Depth in	Weight lbs	Sugg. List
Alinco	DM-1350	30 A	35A	5.5	9.38	9	20	$198.00
Astron	RS-4A	3 A	4 A	3.75	6.5	9	5	$51.95
	RS-7A	5 A	7 A	3.75	6.5	9	9	$68.95
	RS-10A	7.5 A	10 A	4	7.5	10.75	11	$84.95
	RS-12A	9 A	12 A	4.5	8	9	13	$99.95
	RS-20A	16 A	20 A	5	9	10.5	18	$121.95
	RS-35A	25 A	35 A	5	11	11	27	$197.95
	RS-50A	37 A	50 A	6	13.75	11	46	$285.95
	RS-70A	57 A	70 A	6	13.75	13.75	48	$339.95
	RS-12M	9 A	12 A	4.5	8	9	13	$159.95
	RS-20M	16 A	20 A	5	9	10.5	18	$144.95
	RS-35M	25 A	35 A	5	11	11	27	$204.95
	RS-50M	37 A	50 A	6	13.75	11	46	$314.95
	RS-70M	57 A	70 A	6	13.75	12.12	48	$372.95
	RM-35A	25 A	35 A	5.25	19	12.5	38	$309.95
	RM-50A	37 A	50 A	5.25	19	12.5	50	$326.95
	RM-60A	50 A	55 A	7	19	12.5	63	$422.95
	RM-35M	25 A	35 A	5.25	19	12.5	38	$318.95
	RM-50M	37 A	50 A	5.25	19	12.5	50	$354.95
	RM-60M	50 A	55 A	7	19	12.5	63	$467.95
	VS-20M	16 A	20 A	5	9	10.5	20	$170.95
	VS-35M	25 A	35 A	5	11	11	29	$238.95
	VS-50M	37 A	50 A	6	13.75	11	46	$330.95
	SL-11A	7 A	11 A	2.75	7.62	9.95	11	$90.95
	SL-15R	12 A	15 A	2.75	7.62	9.95	14	$119.95
	SS-10	7 A	10 A	1.125	6	9	3.2	$88.95
	SS-12	10 A	12 A	1.375	6	9	3.4	$97.95
	SS-18	15 A	18 A	1.375	6	9	3.6	$99.95
	SS-25	20 A	25 A	2.875	7	9.375	4.2	$161.95
	SS-30	25 A	30 A	3.75	7	9.625	5	$186.95
Icom	PS-30	20 A	25 A	4.3	9.5	11.8	15.6	$470.95
	PS-35	17 A	20 A	*	*	*	6	$239.95
	PS-55	15 A	20 A	4.2	7.2	10.5	17.5	$345.95
	PS-85	15 A	20 A					$299.95
Kenwood	PS-31	20 A	22.5 A	4.7	6.9	12.2	17.4	$219.95
	PS-33	20.5 A	22.5 A	6.81	3.78	11.66	15.4	$239.95
	PS-40	20 A	23 A	2.38	7.1	8.88	4.5	$229.95
	PS-52	22.5 A	22.5 A	4.25	7	12.25	16	$289.95
	PS-53	22.5 A	22.5 A	6.81	3.78	11.66	15.2	$269.95
Samlex	SEC1212	12 A	15 A	2.2	7	8.25	3	$99.95
Yaesu	FP757HD	15 A	20 A	3.7	9.5	9.3	3.2	$334.95
	FP-800	20A	20A	3.66	9.4	9.3	15	$309.95

* Internal Supply (220 volt versions of some models available at additional cost by special order. Contact HRO for details.)

Power Supplies

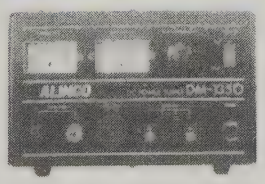
SAMLEX AMERICA

NEW!

Switching Mode Base Station Power Supply SEC 1212

The SEC 1212 was designed specifically for use as a base station power supply for land mobile radios. The supply uses MosFet-based Switchmode technology for high reliability, high efficiency, and minimum size and weight. The design reduces output ripple to levels previously available only from bulky and less efficient linear power supplies. It will deliver high power with no RFI. Current limiting and safe operating area circuitry protect the transistors and a crowbar circuit protects any devices powered by the SEC 1212 from excess voltage. The supply operates from 90-130 volts and produces 12 amps continuously, 15 amps at a 50% duty cycle for 5 minutes. Weight is only 3 pounds. The SEC 1212 has a three year warranty. **HRO Price $79.95**

ALINCO ELECTRONICS INC.



The **DM-1350** is a 35 amp supply with dual meters. Provides up to 30 amps. 110 VAC.

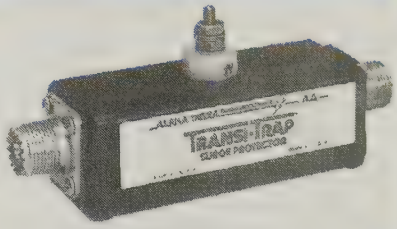
KENWOOD

The **PS-31** goes with the TS-790A. The **PS-33** and the **PS-53** are especially for the TS-450S and TS-690S. The **PS-40** is a compact, switching supply for high current application. The **PS-52** is Kenwood's largest. It is designed for the TS-850 but it will run all Kenwood 12 VDC radios.

ALPHA DELTA

Surge Protectors

Transi-Traps

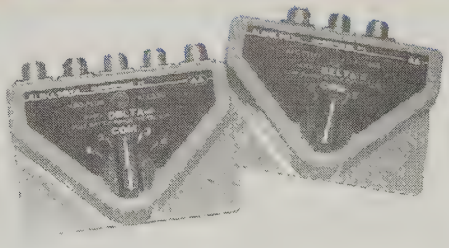


Protect your rig from lightning, EMP and static. Transi-Traps are constructed of the finest quality materials: housings are of die cast aluminum; the brass element provides a constant impedance; the ceramic gas tube cartridge is protected by a unique custom-designed nylon shock absorber. The units give years of reliable service. When hit with a charge that exceeds its rating, it will short and indicate that a replacement plug is required. Most units take thousands of surges before needing a replacement.

Transi-Traps are designed for 50 ohms and include a replaceable cartridge. Units come with UHF connectors. Type "N" are available. To order replacement plugs, specify the model of Transi-Trap so the correct plug can be sent.

Model	Description	HRO Price
RT	200 W through 500 MHz	$32.95
HV	2 kW through 500 MHz	$35.95
LT	T type, 200 W through 30 MHz	$22.95

Lightning Protected Switches



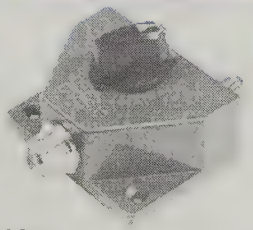
Delta-2 2 Position Switch

This 2 position coax switch is precision lightning surge protected. It has the same constant impedance cavity construction with "center-off" ground as the Delta-4 and a built-in replaceable Arc-plug® cartridge. Order UHF or type "N" connectors for low-loss performance through 1.3 GHz. **HRO Price $49.95; Type N $64.95.**

Delta-4 4 Position Switch

This lightning protected 4 position RF coax switch uses the Alpha Delta Arc-Plug cartridge to protect your equipment from electrical surges. It features the exclusive center "off" (ground) position which internally disconnects and grounds all antenna circuits. The Delta-4 has custom designed cast housing with constant impedance micro-strip cavity construction for outstanding performance through UHF. The switch uses a positive detent roller bearing switch drive, and handles full legal power. Made in the USA. Order Delta-4/N for type "N" connectors. The Delta-4 handles frequencies through 500 MHz and the Delta-4/N through 1.3 GHz. **HRO Price $74.95; Type N $89.95**

Coax Switches



CS-201
Two-position switch.
HRO Price $25.95

DAIWA

Daiwa has two heavy-duty coaxial switches. Both are useable to 500 MHz and the unused positions are grounded. Switches are available at slightly higher prices with type "N" connectors.

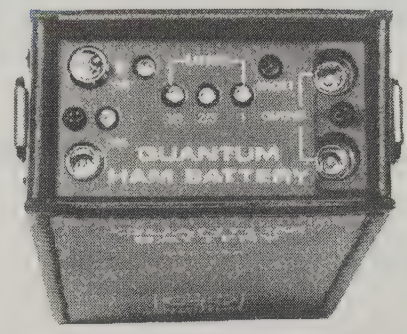
CS-401
Four-position switch.
HRO Price $129.95

BATTERY PACKS

QUANTUM INSTRUMENTS

All-day Battery Power For Your Handheld!

The Quantum Ham Battery (model QHB) can power most models of handi-talkies 3 to 5 times longer than nicad packs. The battery delivers 12 volts for a 5 W output from most HT's. The modular battery is adaptable to many types of equipment. The power pack contains the rechargeable battery and electronics. Adapters with coiled cords connect the high performance power pack to an HT or other equipment.



One Ham Battery can be used for different equipment by switching adapters. This feature means a user need purchase only a new adapter when upgrading or changing to another HT instead of purchasing a whole new battery and chargers.

The Ham Battery is housed in a compact leatherlike case which can be belt-attached or hooked to a shoulder strap. Inside is a powerful 2.1 amp hour, high rate 12 volt rechargeable battery. The cells are sealed lead types. These can be recharged fully and reliably to 100% capacity at all times. The three-LED "fuel gauge" lets you know how much of the battery charge remains.

Included with the Ham Battery are a built-in automatic circuit breaker, recharge indicator and regulator. A charger is supplied with the battery. There are two output sockets for powering two pieces of equipment at once. **HRO Discount Price 129.95**

Quantum Battery Adapters and Accessories

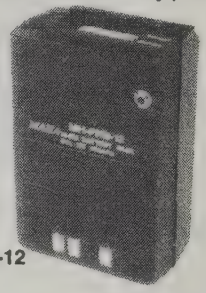
Model	Description	HRO Price
HB3	Icom "S" Series, IC-24AT, W2A, IC-2SRA, IC-4SRA, IC-R1.	$35.95
HB4	Icom "A" & "G" series except IC-24AT.	$35.95
HB5	Kenwood TH-205AT, 215A, 225A, 315A, 415A.	$35.95
HB6	Kenwood TH-25, 26AT, 45AT, 46AT, 75A, 77A.	$32.95
HB7	Yaesu FT-103R, 109R, 203R, 209R/RH, 703R, 709R, 727R.	$35.95
HB9	Yaesu FT-23R, 33R, 411, 470, 73R, 811, 911.	$35.95
HB10	Vehicle socket adapter.	$24.95
HB11	Alinco DJ-160, 460, 560T/E.	$45.95
HB13	Icom P Series IC-P2 / 3 / 4AT.	$45.95
HB16	Kenwood TH-27 / 28 / 47 / 48A /78A, Yaesu FT-416 / 816.	$45.95
HB19	Yaesu FT-26/ 76/ 415/ 815/ 530.	$45.95
HB20	DC Plug Set.	$28.95
HB21	Alinco DJ-F1T, DJ-F1T-HP.	$45.95
HB31	Alinco DJ-580T / DJ-180T.	$45.95
HB36	Vehicle fast charger.	$81.95
RA17	AC adapter for HB36.	$39.95
HB0	Coiled power cord for QHB.	$21.95
HB40	Quantum shoulder strap.	$14.95
HBCA-4	Standard C228 / 528 / 628A.	$45.95
HBCA-5	Standard C168 / 468A.	$45.95

MAHA

Nickel Metal Hyride Replacement Battery Packs

Maha is offering a technological break-through of nickel metal hydride for the ham radio battery pack. The advantages are:

- No memory effect.
- Long life and 50%-100% increase in capacity over same size NiCADs.
- Light weight; small size.
- Environmentally friendly.



MH-FNB-12

Icom

Model	Volts (DCV)	Capacity (mah)	HRO Price
MH-BP-7	13.2	900	$69.95
MH-BP8	8.4	1200	$59.95
MH-BP-8H*	8.4	1800	$69.95
MH-BP-83	7.2	1200	$49.95
MH-BP-132B	12	1200	$59.95
MH-BP-132G	12	1200	$59.95

*Same size as MH-BP-8 and Icom BP-8

Kenwood

Model	Volts (DCV)	Capacity (mah)	HRO Price
MH-PB-8	12	1200	$62.95
MH-PB-17	12	900	$69.95
MH-PB-18	7.2	1200	$49.95
MH-PH-32	6	900	$47.95
MH-PB-33	6	1200	$49.95

Standard

Model	Volts (DCV)	Capacity (mah)	HRO Price
MH-CNB-152	12	900	$59.95
MH-CNB-153*	7.2	1200	$49.95

*Same size as CNB-151

Yaesu

Model	Volts (DCV)	Capacity (mah)	HRO Price
MH-FNB-12	12	900	$59.95
MH-FNB-17	7.2	900	$49.95
MH-FNB-27	12	900	$59.95
MH-FNB-31	4.8	650	$49.95
MH-FNB-38	9.6	650	$59.25
MH-FNB-40H	7.2	650	$56.95
MH-FNB-41	9.6	900	$55.95
MH-FNB-V47	7.2	1800	$69.95

MAHA

Desktop Rapid Chargers

Model	Compatible Battery Packs	HRO Price
MH-101-Y1	Yaesu FNB 10 to 17, 25 to 27	$69.95
MH-101-Y2	Yaesu FNB 31 to 38	$69.95
MH-101-Y3	Yaesu FNB 40 to 42	$69.95
MH-101-I1	Icom BP 131, 132, 157, 160, 174	$69.95

Accessories

NEW!

Model	Description	HRO Price
MHS-V47BC	Sping loaded belt clip for HM-FNB-41 & V47	$9.95
MHS-CPB3	PL-259 to BNC 50 Ohm patch cable to connect HT to amp. 1 meter long	$8.90
MHS-Y3	MH-A301 & 302 adapter for Yaesu FT-51R	$9.95
MHS-Y4	MH-A301 & 302 adapter for Yaesu FT-50R	$9.95
MHS-I4	MH-A301 & 302 adapter for Icom T7/T22/T42/Z1A /W31/W32	$9.95

Batteries

Duracell

Many of the accessories and radios offered in the catalog require batteries for their operation. HRO now carries the popular Duracell batteries. Ask your HRO representative to include these in your next order.

Model	Description	HRO Price
AA	AA Alkaline Battery Cell	$0.79
9 Volt	9 Volt Alkaline Battery	$2.49
C	C Size Alkaline Battery	$1.29
D	D Size Alkaline Battery	$1.29

NEW!

Advanced Battery Systems

Advanced Battery Systems (formerly Periphex) makes a collection of replacement battery packs for all popular handheld radios. HRO Stocks these packs to provide you with superior battery performance at an affordable price. The Super (S) models offer additional operating time when compared to manufacturer-provided batteries. Depending on the battery model and radio, an additional 15% to 100% operating time can be achieved.

Advanced Battery Systems is now making battery packs using Nickel-Metal Hydride technology. Each battery is equipped with short circuit and over charge protection. These batteries are more environmentally friendly. The NiMH batteries will not develop the permanent "memory effect" that is often associated with NiCDs. The NiMH chemistry has much higher capacity per volume and weight than the NiCD chemistry. There is a collection of NiMH replacement battery packs for most popular handheld radios. HRO stocks these packs to provide you superior battery performance at an affordable price.

NiCD Batteries

Most Alinco Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
EBP-22S	12	800	$65.95
EBP-24S	7.2	1500	$62.95
EBP-34	8.4	1200	$35.00
EBP-34S	4.8	1600	$49.00
EBP-35	7.2	900	$50.00
EBP-36	9.6	650	$55.00

Most Icom Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
BP-7S	13.2	1200	$65.95
BP-8S	9.6	1200	$65.95
BP-83S	7.2	750	$43.95
BP-84S	7.2	1400	$63.95
BP-85S	12	800	$76.95

Most Kenwood Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
PB-7S	7.2	1400	$59.95
PB-8S	12	800	$59.95
PB-13S	7.2	1200	$49.95
PB-14S	12	400	$60.95
PB-17	12	800	$49.95
PB-18	7.2	1400	$49.25
PB-33	6	1200	$49.00
PB-34	9	600	$54.00

Most Yaesu Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
FNB-12	12	600	$54.95
FNB14S	7.2	1400	$59.95
FNB-26S	7.2	1400	$65.95
FBN-27S	12	800	$65.95
FNB-33	4.8	1400	$53.25
FNB-35	7.2	600	TBA
FNB-38	9.6	650	$66.90

NiMH Batteries

Alinco Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
EBP-22SM	12	1300	$65.00
EBP-24SM	7.2	2200	$60.00
EBP-34M	4.8	2200	$65.00

Icom Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
BP-7SM	13.2	2200	$75.00
BP-8M	8.4	2200	$69.00
BP-83M	7.2	1300	$50.00
BP-84SM	7.2	2200	$60.00
BP-85SM	12	1300	$75.00

Kenwood Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
PB-7SM	7.2	2200	$65.00
PB-8SM	12	1300	$62.00
PB-13SM	7.2	1300	$50.00
PB-17M	12	1300	$69.00
PB-18M	7.1	2200	$55.00
PB-33M	6	1900	$49.00

Standard Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
CNB-152M	12	900	$69.00
CNB-153M	7.2	1300	$49.00

Yaesu Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
FNB-11M	12	1300	$59.00
FNB-26SM	7.2	2200	$64.00
FBN-27M	12	900	$59.00
FBN-27SM	12	1300	$59.00
FNB-33M	4.8	2200	$49.00
FNB-38M	9.6	750	$75.00

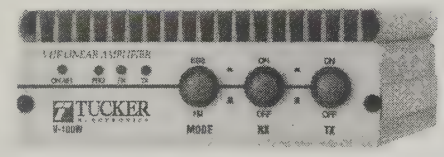
TUCKER

TUCKER CLOSEOUTS

All Tucker Products Are on Closeout. Order Now While Supplies Last. Limited Stock Available.

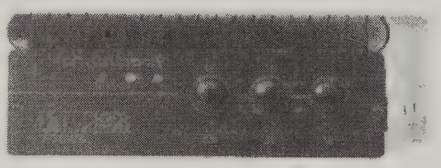
Amplifiers

100 Watt 2m Amp
TUK V100W



The TUK-V100W accepts 0.5 to 10 watts input with a maximum output of 100 watts. It performs on all modes (SSB/CW/FM) and has a built-in GaAsFET 15 dB receive pre-amp for those weak signals. It has SO-239 connectors and requires 13.6 VDC, 16 amps.
HRO Price $189.95

35 Watt 2m Amp
TUK V35W

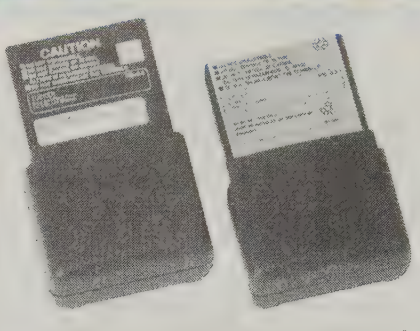


The TUKV35W accepts 0.5 to 8 watts input and produces a maximum of 35 watts output. It performs on all modes (SSB/CW/FM) and has a built-in 15 dB GaAsFET receive pre-amp for those weak signals.

Front panel LEDs measure your output power up to 35W and a front-panel DC Monitor lets you know your DC supply voltage at a glance.

It has SO-239 connectors and requires 13.6 VDC, 5 amps. **HRO Price $69.95**

Kenwood Batteries



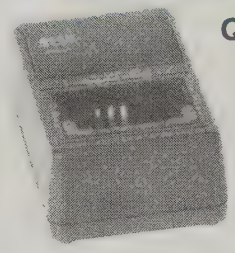
Battery Packs for Kenwood HTs
TUK PB-33 / PB-34

Tucker NiCad replacement batteries for Kenwood HTs provide all the performance at half the cost. The replacement batteries are physically identical to the original manufacturer's batteries. The batteries work with the current Kenwood HT's (TH22AT, TH-42AT and TH-79).

TUK PB-33 6V / 1200 mAH
HRO Price $37.95

TUK PB-34 9.6V / 600mAH
HRO PRICE $37.95

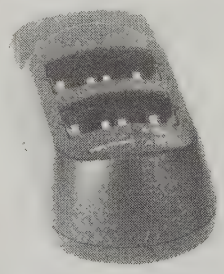
Quick Chargers



Quick Chargers for Icom or Kenwood HT Batteries

TUK IC-1

The **TUK IC-1** is a rapid charger (less than 2 hours) for all your Icom batteries. Charges either NiCad or Nickel Metal Hydride batteries from the IC-7A/ 2GXAT/21A/431A/22A/ W21AT/V21/Z21/W31A/Z1A/2iA/P2AT. LEDs indicate the charging mode and also when your charging is completed.
HRO Price $56.95

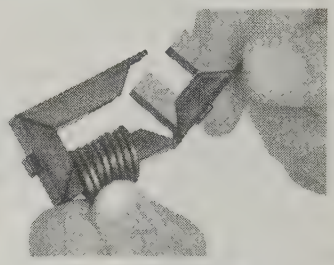


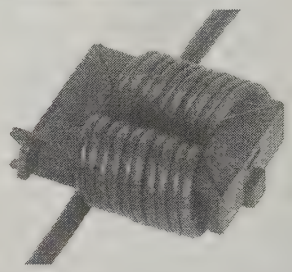
TUK KC-1

The **TUC KC-1** is a rapid charger (less than 2 hours) for the PB-33/34 batteries. A unique 3-step charging method gently charges your battery to prolong it's life. **HRO Price $39.95**

Chokes

Snap Apart Ferrite Chokes
TUK T-125

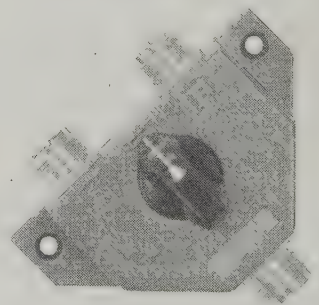




These simple-to-use snap on chokes provide the best way to eliminate interference from radios, televisions, audio equipment, computers, and telephone equipment. Simply wrap the cords of these devices inside the choke and snap it back together. These filters can be used in series with each other for further protection. If you're having trouble with RFI, give one of these filters a try!
HRO Price (Package of Two) $4.99

Coax Switch

2 Position Coax Switch
TUK CX-201A



This 2 position coax switch will handle up to 2.5 kW PEP and 1.5 kW CW from 0 to 1000 MHz. Center position grounds both outlets. Has built-in static protection. SO-239 connectors.
HRO Price $19.95

Earphone / Mikes

Hands-Free Earphone / Mikes TUK EM-1 TUK EM-1K

These quality earphone / mikes make operating your HT a snap. Just insert the low-noise earphone into one ear, clip the highly-sensitive omnidirectional mike onto your lapel, strap your HT to your belt, and go. The mike is controlled by a handy PTT switch or use the VOX function of your transceiver for complete hands-free communication. Great for public service and other portable operation.

TUK EM-1 works with ADI, Alinco, Icon, Standard and Yaesu handhelds. **TUK EM-1K** works with Kenwood handhelds. HRO Price for either model is just $14.95

Intermod Filter

2 Meter Intermod Filter TUK TF-144

This three-pole filter will end the intermod problems on your 2 meter rig. Simply install the TF-144 in line between your antenna and the antenna input of your mobile rig or handheld, and hook up the attached wire to +12 VDC. It automatically switches on during receive and attenuates out-of-band signals by as much as 50dB. Connectors: SO-239.
HRO Price $56.95

Collect these Tucker Bargains while they last. Most orders greater than $100 receive free UPS Brown shipping in continental US.

Antennas for HTs

Dual Band HT Antenna TUK HTA-2/70

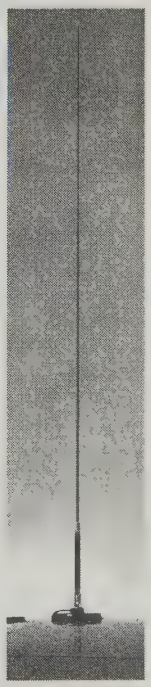
This antenna offers superb performance for 2m/70cm dual band HT's. It operates as a full quarter wave at UHF and a loaded quarter wave at VHF. Silver plated connectors are fully soldered for durability and have a PVC outer wrap for rugged wear. 8" tall and a 25 watt rating.
HRO Price $23.95

Helical 1/4 Wave 2m HT Antenna TUK HTA-144

This quarter-wave antenna for your 2m HT will give you better range and performance than the rubber duck supplied with your rig. Silver-plated BNC connector, 9.5" tall, 25 watt rating.
HRO Price $18.95

Mobile Antenna

5/8 Wave Gain 2 Meter Antenna TUK TA-750

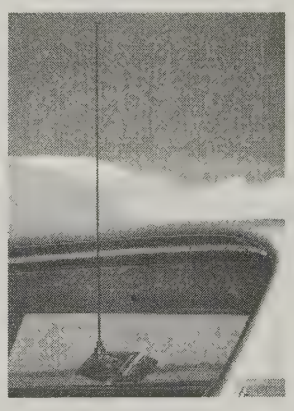


The TUK TA-750 provides maximum single-element gain on 2 meters. It features a 52" stainless steel whip attached to a heavy duty black magnet mount. Includes 12' coax cable and a PL-259 connector. The mount and antenna use a standard 3/8" mount. VSWR is 2:1 or less from 144-148MHz. Power capacity: 100 watts. **HRO Price $19.95**

Glassmount Antennas

Dual Band (2m/70cm) Glassmount Antenna TUK TA-150

The TUK TA-150 through-the-glass antenna for dual band mobiles provides a 2.6 dB gain on 2m and 6.3 dB on 440MHz. The antenna handles 50 watts. It includes a 26" black stainless steel whip, 14' of coax, and mounting hardware. Typical VSWR is less than 2.0:1 throughout both bands. (Not for use on tinted windows)
HRO Price $29.95

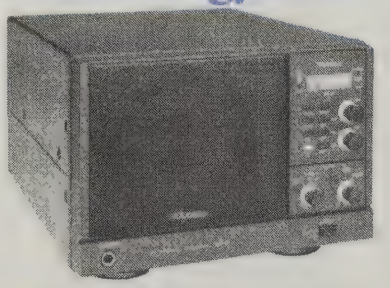


2 Meter Glassmount Antenna TUK TA-100

The TUK TA-100 is easy to mount on most vehicles. Simply place this antenna on any available window space, mount the base on the inside of the glass, and run the supplied 14' of coax to your 2m radio. Provides 2.5 dB gain across the 2m band with 1.5:1 or less VSWR. The whip is 27" black stainless steel and handles up to 55 watts of power. (Not for use on tinted windows) **HRO Price $27.95**

Signal Processors / Noise Filters

Timewave Technology, Inc.

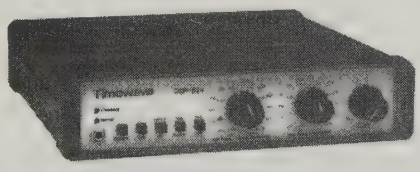


Pictured with optional speaker.

NEW!

DSP-59Y
DSP Plug-In

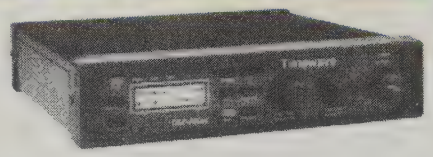
The DSP-59Y is a plug-in module that fits into the Yaesu SP-5 / SP-6 speakers. It has many of the features of the DSP-599zx. The DSP is field upgradable. It has an LCD display for Visible Memories™. CW filters from 10 Hz to 600 Hz with CW pitch shift. Voice filter up to 5 kHz wide for SSB, FM and AM shortwave listening. Features the new Hyperspeed DSP processor at 36.8 MIPS (the fastest) with 80 Kbytes of RAM on the CPU. Uses the existing 1/4" phone jack in the speaker cabinet, A/B switch for selectable input channels. It also has automatic notch and manual notch filters. Manual notch can be used in the CW mode. Variable noise aggressiveness. **HRO Price: $379.95**



DSP-59+
Digital Signal Processor

The DSP-59 improves radio reception by reducing noise and interference. Digital signal processors provide filters for five base functions: 1) Random noise reduction; 2) Tone noise reduction; 3) Highpass filtering; 4) Low-pass filtering; 5) Bandpass filtering. The functions are combined to make five switch selectable modes.

The DSP-59 is compatible with all amateur radio transceivers and receivers. Simply connect it between the radio and the speaker. Requires 12-16 VDC to operate (not provided). **HRO Price $259.95**

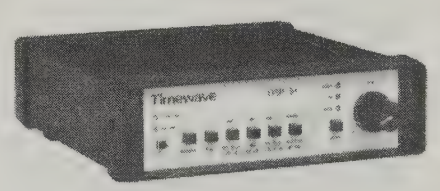


DSP-599ZX
All Mode Noise Filter

This powerful noise and QRM filter combines a hyperspeed DSP and optical encoders to wipe out noise. Continuous filter tuning up to 5.4 kHz opens up wider bandwidth modes like shortwave, AM broadcast, and VHF/UHF FM. Heterodynes disappear, weak signals pop up from the noise, and the razor-sharp filters slice away QRM. The DSP RTTY demodulator pulls out solid copy when you barely hear a signal. Easily read all filter settings on the backlighted alphanumeric LCD display. Test mode has a calibrated variable frequency, an amplitude audio oscillator, and an audio voltmeter.

- Hyperspeed DSP - 27 ns, 36.8 MIPS.
- 80 kB RAM on the DSP chip.
- Multiple memories.
- Programmable input sensitivity and line output level; front panel programming.
- Audio voltmeter and generator.
- Two selectable channels.

HRO Discount Price $369.95



DSP-9+
Noise Filter

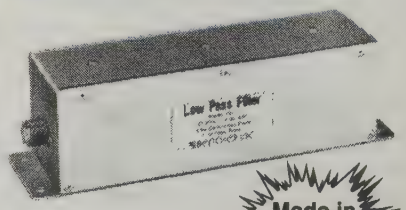
The DSP-9+ digital signal processer reduces random noise, eliminates heterodyne, and provides band-pass filtering. It reduces interference with an adapative noise filter for SSB and AM. It eliminates heterodynes with multiple automatic notch filters. Sharp speech, data and CW filters provide 1.8, 2.4 and 3.1 kHz bandpass well as 100, 200 and 500 Hz bandpass. This is perfect for RTTY, AMTOR, PACTOR, HF Packet and CW. **HRO Price $199.95**

DSP-9
Noise Filter

This is the basic filter for SSB and CW. Excellent for mobile operation. Random noise reduction and 3 sets of SSB and CW filters. Easy push button operation. Heterodyne elimination. **HRO Price $169.95**

High / Low Pass Filters

BENCHER, INC.

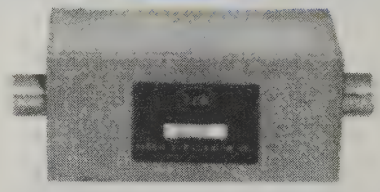


Made in USA

YA-1

Bencher's low-pass filter has exceptional specifications. Working range: 1.8-29 MHz. Impedance: 50 ohms. Power rating: 1.5 KW continuous, 5 KW peak. Attenuation: at least 80 dB at 54 MHz. **HRO Price $59.95**

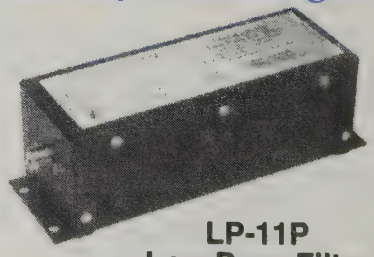
B&W



B&W manufacturers two low-pass filters with different power handling capability. Attenuation is 60 dB at 54 MHz.

Model	Power	Cut-Off	Price
FL-10/100	100 w	30 MHz	$79.95
FL-10/1500	1500 w	30 MHz	$79.95

Oak Bay Technologies



LP-11P
Low Pass Filter

The LP-11P is a commercial quality low-pass filter. It operates from 1.8-30 MHz with an 11 pole inverse Chebishev design. The upper cutoff frequency is 41 MHz with 80 db attenuation by 51 MHz. Maximum power is 1000 watts. **HRO Price $69.95**

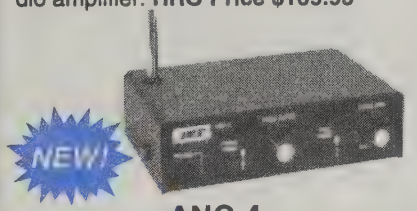
Audio Enhancers

NRF-7
Filter / Noise Reducer

The NRF-7 provides no-delay filters for AMTOR, PACTOR and break-in CW. The filter uses state-of-the-art Digital Signal Processing (DSP) for sharp non-ringing CW and voice filters plus auto Notch and white noise reduction.It connects between the speaker output of your receiver or transceiver and an external speaker.
HRO Price $239.95; AC Supply **$16.95**

NTR-1
Wide-Band
Noise / Tone Remover

The NTR-1 general purpose audio processing unit provides noise reduction and multiple tone removal for AM / FM or other wideband signals. It provides narrow band operation for SSB, CW or data reception. It operates on the receiver audio output and contains a built-in audio amplifier. **HRO Price $169.95**

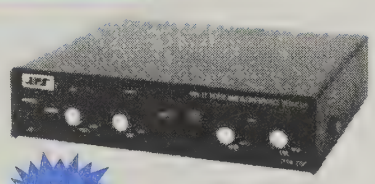


ANC-4
Antenna Noise Canceller

Eliminates local POWER LINE noise before it enters the receiver to let you hear signals you did not know were there. Reduces any locally-generated noise typically by 50 dB. Usable between 100 kHz and 80 MHz. Short whip and wire antennas supplied with each unit. Rear panel connector for external noise probe. Auto transmit switch over up to 250W. Delay time internally selectable. Installed between the antenna and receiver. Europe CE Certified. Requires 12VDC @ 300 mA. **HRO Discount Price $179.95**

SSTV-1
DSP Filter for SSTV

Use the SSTV-1 filter with Slow Scan TV to remove adjacent channel and in-band interference from SSTV signals. It clears noisy, distorted SSTV pictures with digital signal processing. **HRO Price $159.95**



NEW!

NIR-12
Dual DSP
Noise Reduction & Filter

Features TWO 40 MHz DSPs to provide the most powerful and advanced DSP noise reduction unit available. Unparalleled performance, super selective FIR filters, fully adjustable filter center frequency and bandwidth (3400 Hz to 50 Hz); both Dynamic Peaking and Spectral Subtraction Noise Reduction; Spectral multi-tone NOTCH filter. All NIR-12 modes and functions may be used simultaneously. Use on all operating modes, including AMTOR and PACTOR. Installs between the receiver audio output and the external speaker. Europe CE Certified. Requires 12VDC @ 300 mA.
HRO Discount Price $339.95

SDK-12
NIR-12 Software Kit

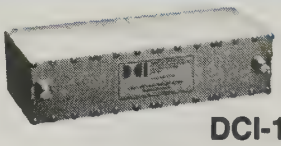
Provides the interface module and software disk to allow programming of the NIR-12 DSP chips via the serial data bus on your personal computer. **HRO Price $35.95**

NF-60
Notch Filter

The NF-60 DSP Spectral Notch Filter automatically removes MULTIPLE heterodynes, tune-ups or CW / RTTY tones in 5 msec. The NF-60's DSP filter algorithm provides as many extremely narrow notch filters as there are tones. Connects between your transceiver or receiver speaker jack and an external speaker. **HRO Price $155.95**
AC Supply **HRO Price $16.95**

Bandpass Filters

DIGITAL COMMUNICATIONS INC.



DCI-146-4H
Bandpass Filters

Eliminate intermod with these bandpass filters **for 144, 220 and 440 MHz.** Connect a filter between your VHF / UHF, base or mobile rig and antenna. Enjoy monitoring your favorite station without listening to the squawks and squeals of intermod. These filters reduce the strength of interfering signals while allowing the signals you want to hear to pass through at virtually full strength.

The filters are made to first-class specifications with silver-teflon connectors and extruded aluminum, copper and brass. In addition to the standard 4-pole filters, 7-pole and larger ultra-sharp filters are available. Contact HRO for more information.

The DCI-146-4H intermod filter for 2 meters is 12"X3"X5" and has UHF connectors. It can be custom tuned to almost any frequency between 100 and 900 MHz.
DCI-146-4H: HRO Price $89.95

Telephone Filters

Stop telephone RFI from transmitters in the 0.5 to 30 MHz range. These filters are fully assembled and come with instructions. Either model can be special ordered to cover 500 kHz to 3.0 MHz. Call for pricing and information.

Model RF-1 Single Line Filter for phones, answering machine, modems, fax and cordless phones. RJ-11 modular connectors. Can be special ordered for two-line phones. **HRO Price $16.95**

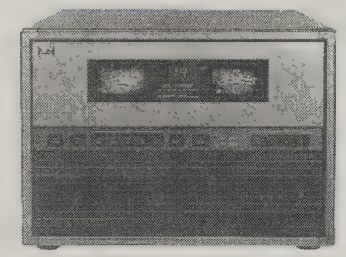
Model RF-2 For inserting RFI filtering into telephone wiring: inside phone jacks, behind wall-mounted phones, etc. Solder-less connectors. **HRO Price $10.95**

AMPLIFIERS

HF Amplifiers

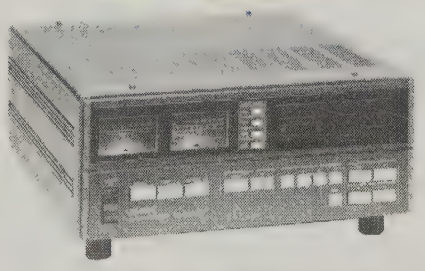
JRC

JRL-2000F
$4899.95
Suggested List
Call for Quote



The JRL-2000F has solved the problems of many conventional linear amplifiers: troublesome manual operation, fan noise, low margin of output and high IMD. The JRL-2000F is a heavy duty amp using 48 MOSFET for low distortion, high speed automatic antenna tuner, high efficient switching power supply, automatic antenna selector, and wireless remote control unit. Provides 1 kW output with a maximum input of 100 watts. Shipped by truck or FedEx only at extra cost.

YAESU

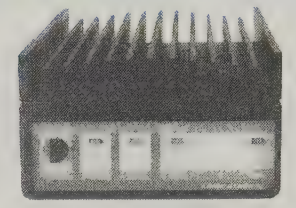


FL-7000

Yaesu's solid-state amplifier requires less than 100 watts to drive and produces 600 watts output power. It has a built-in automatic antenna tuner. The built-in power supply operates on 100-234 VAC, but an internal modification is required to change the voltage. The duty cycle on SSB is 30 minutes, or, for full carrier, 2 minutes. The amp obtains its band data directly from the Yaesu exciter and band changes are automatic. Band data can be selected from the front panel so the amp can be used with other manufacturer's exciters. The amp comes with an interface cable for the FT-757. Optional cables are required for the FT-767, FT-990, FT-1000 (E767), FT-890 (CT-11) or the FT-980 (E980).

VHF / UHF Amps

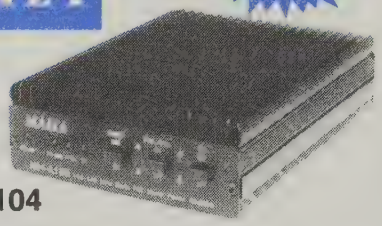
rfconcepts



Kantronics has redesigned it's FM VHF/UHF amplifier line for 1997. The MAX-amp series are computer designed and feature directional couple keying, VSWR protection, and temperature protection. The MINI amps are perfect for use with HTs. Here's that "extra punch" needed for distant contacts.

MAHA

NEW!



MH-A104

Maha's line of compact amplifiers for 2m/70cm single and dual-band use will help you hit repeaters more easily and receive better with their low noise GaAsFET pre-amps. While using Maha's docking boosters for your handhelds, there is no need for the battery pack. The booster will power your radio while it boosts the transmission and receive. The MH-A104 amplifier supports both SSB and FM modes. The output power is adjustable 10 to 100W with a +5 to + 15 dB adjustable receiver pre-amplifier. More amps and docking boosters are listed on page 85.

24-Hour FAX Order Numbers

Anaheim	714-533-9485
Atlanta	770-263-9548
Denver	303-745-7394
New Castle	302-322-8808
Oakland	510-534-0729
Phoenix	602-395-1244
Portland	503-684-0469
Salem	603-898-1041
San Diego	619-560-1705
Sunnyvale	408-736-9499
Burbank	818-842-5283
Woodbridge	703-494-3679

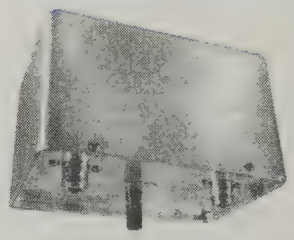
VHF / UHF Preamps

LANDWEHR

GaAsFET Preamps

Landwehr's affordable, high quality, mast-mounted preamps come in three models: 2 meters, 220 MHz and 440 MHz. The GaAs-FET design provides gains up to 18 dB with a low noise figure. Features include type-N connectors and automatic T/R switching up to 150 watts. The preamp is **very popular** with satellite and "weak signal" enthusiasts. Call for quotes.

AMPIRE



Ampire's low noise pre-amplifiers for VHF and UHF automatically switch from receive to transmit when the transmitter is keyed. In receive mode they feature a helical filter with a narrow bandpass.In case of power loss, the relay will drop out of the transmit mode.

Patch Cables

VAN GORDEN

Use Van Gorden Patch Cables to connect your amp to your rig. They are made from RG-8X coax with silver teflon PL-259 connectors. Use the longer cables for antenna runs.

Model	Length (feet)	HRO Price
8X-1.5ST	1.5	$6.99
8X-3ST	3	$8.99
8x-6ST	6	$11.99
8X-12ST	12	$14.95
8X-18ST	18	$18.95
8X-50ST	50	$29.95
8X-100ST	100	$49.95

HRO will provide 10 meter modification information to amplifier customers upon receipt of a copy of your valid, current amateur radio license.

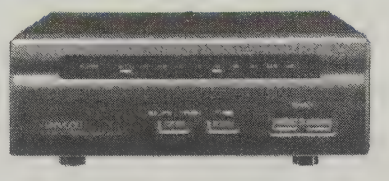
AMPLIFIERS

Manufacturer	Model	Frequency Range	Modes	Power In	Power Out	Voltage	Current	Pre-amp	Connector	Wgt	List Price Call for HRO Discount Price
Ameritron	AL-1500	160-15 M*	SSB. CW	65 W	1500+ W	220 VAC	15 A	–	SO-239	50 lbs#	$2.695.95
	AL-1200	160-15 M*	SSB. CW	100 W	1500 W	220 VAC	15 A	–	SO-239	50 lbs#	$2,195.95
	ALS-500M	160-15 M*	SSB. CW	100 W	500 W	13.8 VDC	80 A	–	SO-239	7 lbs	$799.95
	ALS-600	160-15 M*	SSB. CW	100 W	600 W	110/220 VAC	12 A 110V	–	SO-239	13 lbs#	$1,299.95
	AL-80B	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC	15/10 A	–	SO-239	54 lbs	$1,195.95
	AL-800	160-15 M*	SSB, CW	100 W	750 W	110 VAC	12 A	–	SO-239	67 lbs	$1,595.95
	AL-800H	160-15 M*	SSB, CW	55 W	1500 W	240 VAC	9 A	–	SO-239	69 lbs	$2,295.95
	AL-811	160-15 M*	SSB, CW	75 W	600 W	110/220 VAC	8/4 A	–	SO-239	40 lbs	$699.95
	AL-811H	160-15 M*	SSB, CW	75 W	800W	110/220 VAC	8/4 A	–	SO-239	41 lbs	$849.95
	AL-82	160-15 M*	SSB, CW	100 W	1500 W	220 VAC	15 A	–	SO-239	52 lbs#	$2,095.95
JRC	JRL-2000F	160-12 M*	SSB,CW	100 W	1000 W	110/220 VAC	2.5 kVA	–	SO-239	62 lbs	$4,899.95
MAHA	MH-A101	144-148	SSB/FM	5 W	35 W	13.8 VDC		–	SO-239		$69.95
	MH-A102	144-148	SSB/FM	5 W	35 W	13.8 VDC		yes	SO-239		$89.95
	MH-A103	144-148	SSB/FM	5 W	50 W	13.8 VDC		yes	SO-239		$109.95
	MH-A104	144-148	SSB/FM	5 W	10-100 W	13.8 VDC		yes	SO-239		$209.95
	MH-A201	144-148/430-450 MHz	SSB/FM	5 W	45 / 35 W	13.8 VDC		–	SO-239		$149.95
	MH-A301 Booster	144-148	SSB/FM	5 W	50 W	13.8 VDC		yes	SO-239		$109.95
	MH-A302 Booster	144-148/430-450 MHz	SSB/FM	5 W	45 / 35 W	13.8 VDC		yes	SO-239		$149.95
Mirage	A -1015G	50-54 MHz	All	10 W	150 W	13.8 VDC	23 A	yes	SO-239	5 lbs	$389.95
	B-34	144-148 MHz	FM	2 W	35 W	12-15 VDC	4 A		SO-239	2 lbs	$69.95
	B-34G	144-148 MHz	FM	2W	35 W	12-15 VDC	4 A	yes	SO-239	2 lbs	$89.95
	BD-35	143-149/430-450 MHz	FM	7 W	45 W	12-15 VDC	7 A		SO-239	3 lbs	$159.95
	B-215G	144-148 MHz	All	2 W	150 W	13.8 VDC	20 A	25 dB	SO-239	5 lbs	$377.95
	B-310G	144-148 MHz	All	4 W	100 W	13.8 VDC	15 A	yes	SO-239		$199.95
	B-108G	144-148 MHz	All	10 W	80 W	13.8 VDC	12 A	10 dB	SO-239	3 lbs	$227.95
	B-1016G	144-148 MHz	All	10 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	$377.95
	B-1030G	144-148 MHz	All	10 W	300 W	13.8 VDC	48 A	yes	SO-239		$687.95
	B-2516G	144-148 MHz	All	25 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	$318.95
	B-2530G	144-148 MHz	All	25 W	300 W	13.8 VDC	48 A	yes	SO-239	15 lbs	$687.95
	B-5016G	144-148 MHz	All	50 W	160 W	13.8 VDC	24 A	yes	SO-239		$318.95
	B-5030G	144-148 MHz	All	50 W	300 W	13.8 VDC	48 A	yes	SO-239		$669.95
	C-22	222-225 MHz	All	2 W	20 W	13.8 VDC	5 A	–	SO-239		$167.95
	C-22G	222-225 MHz	All	2 W	20 W	13.8 VDC	5 A	yes	SO-239	2 lbs	$167.95
	C-211G	222-225 MHz	All	2 W	110 W	13.8 VDC	20 A	yes	SO-239	5 lbs	$337.95
	C-106G	222-225 MHz	All	10 W	60 W	13.8 VDC	12 A	yes	SO-239	4 lbs	$238.95
	C-1012G	222-225 MHz	All	10 W	120 W	13.8 VDC	5 A	yes	SO-239	5 lbs	$337.95
	C-1022G	222-225 MHz	All	10 W	60 W	13.8 VDC	20 A	yes	SO-239	4 lbs	$229.95
	C-2512G	222-225 MHz	All	25 W	120 W	13.8 VDC	20 A	yes	SO-239	5 lbs	$334.95
	C-2522G	222-225 MHz	All	30 W	200 W	13.8 VDC	42 A	yes	SO-239		$699.95
	D-15N	425 - 450 MHz	All	2 W	15 W	13.8 VDC	3 A	–	N type		$187.95
	D-26N	430-450 MHz	All	2 W	60 W	13.8 VDC	12 A	–	N type	2 lbs	$267.95
	D-1010N	430-450 MHz	All	10 W	100 W	13.8 VDC	20 A	–	N type	5 lbs	$391.95
	D-3010N	430-450 MHz	All	30 W	100 W	13.8 VDC	20 A	–	N type		$361.95
	D-100-ATVN	429 MHz ATV	All	1 W	52 W	13.8 VDC	20 A	–	N type		$414.95
	D-1010-ATVN	430 MHz ATV	All	10 W	100 W	13.8 VDC	20 A	–	N type		$414.95
RF Concepts	MAXAMP-10	144-148 MHz	All	10 W	150+ W	13.8 VDC		yes			$349.95
	MAXAMP-45	144-148 MHz	All	45 W	150+ W	13.8 VDC		yes			$319.95
	MINAMP-144	144-148 MHz	FM	3 W	30 W	13.8 VDC		–			$119.95
	MINAMP-144P	144-148 MHz	FM	3 W	30 W	13.8 VDC		yes			$129.95
	2/70G	143-149/430-450 MHz	FM	.5-7 W	(5in)30 / 20 W	13.8 VDC	6 A	15/10 dB	BNC	3 lbs	$289.95
	MINAMP-440	430-450 MHz	FM	2 W	20 W	13.8 VDC		–			$129.95
	MINAMP-440P	430-450 MHz	FM	2 W	20 W	13.8 VDC		yes			$159.95
	4-310	420-450 MHz	All	.2-40 W	(30in)100 W	13.8 VDC	20 A	12 dB	N type	5 lbs	$369.95
	4-110	420-450 MHz	All	.2-15 W	(10 in) 100 W	13.8 VDC	22 A	12 dB	N type	5 lbs	$399.95
SGC	SG-500	Export or Domestic	SSB,CW		500 W	13.8 VDC	**				$1,195.95
Yaesu	FL-7000	160-15 M*	SSB, CW	100 W	600 W	110/220 VAC	20/10 A	–	SO-239	60 lbs	$2,459.95

* Owner modifiable for 10 meters # Add 35 pounds for transformer shipped in separate package. ** SGC PS-50 recommended to meet specs

ANTENNA TUNERS

KENWOOD



AT-50

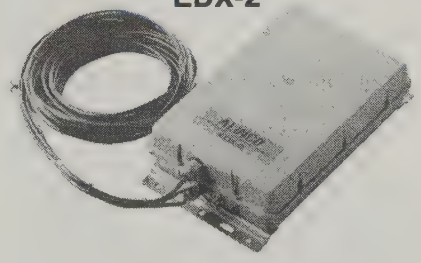
A fully automatic antenna tuner to use with the TS-50 and other 100 watt HF transceivers. Useful for both mobile or fixed operation. Accurate tuning by pressing the AT TUNE key on the TS-50. Can be installed remotely. **Suggested List $369.95**

AT-450

Automatic tuner specially designed to operate inside the TS-450S and the TS-690S. It can easily be installed in the field by the ham. **Suggested List $249.95**

ALINCO ELECTRONICS INC.

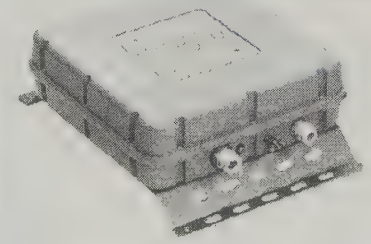
EDX-2



This automatic tuner is designed for use with the Alinco DX-70 HF radio but may be adapted for use with most HF rigs. Tunes from 10 to 160 m with wire lengths of 8 to 80 feet (40' for 160m). **HRO Price $329.95**

YAESU

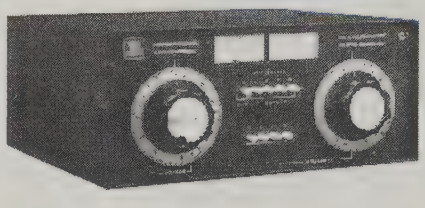
FC-800



This automatic antenna tuner operates with the FT-890 HF transceiver. The tuner is fully automatic and operations can be controlled from the front of the FT-890. **Suggested List $499.95**

3 KW Tuner MB-V-A

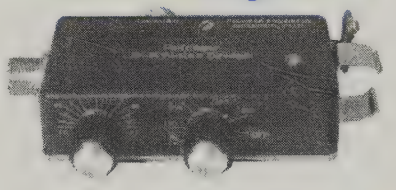
Nye Viking



This high quality antenna tuner is designed for the amateur who wants "the best." Match transmitter output impedance to almost any antenna system for maximum power transfer. Low pass Pi network tuning 1.8-30 MHz. Automatic SWR. Separate power meter, 300 or 3000 W. Push button antenna switch for 4 antennas. Includes 3 KW balun. **Suggested List Price $830.95**

Noise Bridge

Palomar Engineers



R-X Noise Bridge RX-100

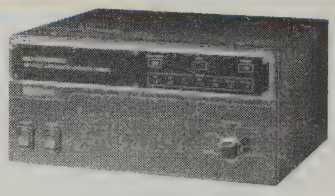
The R-X Noise Bridge tells you whether or not your antenna is resonant. If not, it tells you whether it is too long or too short. It works with dipoles, inverted vees, quads, Yagi beams, multiband trap dipoles, and verticles. Frequency range is 0 to 100 MHz. On multiband trapped antennas, you can adjust each band. Use it to measure coax, tune your antenna tuner, test a balun, and check tuned circuits. Since the RX-100 uses your receiver, it is much more accurate than a grid dip meter. **(Warning! Do not transmit into the RX-100. The unit will be damaged.)** HRO Price $79.95

For Speedy Delivery, HRO Ships from the Store Nearest You

ICOM

Icom has six antenna tuners to use with their radios. All are automatic and, with the front panel controls, can be used with most HF exciters. Random wire and balanced line antennas cannot be used with the resonant antenna tuners. See the table on Page 11 for more tuner / radio compatibilities.

Resonant



AT-500

A tuner for base station use with a cabinet to match the IC-751A. The AT-500 can be used with the 2KL HF linear. **HRO Price: $999.95**

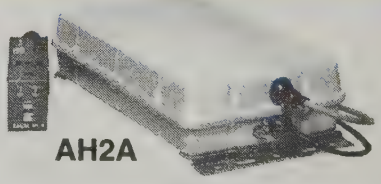
AT-150 / AT-160

Fully automatic 100 W tuners styled after the IC-735 and IC-728 respectively. **HRO Prices: AT-150 $529.95; AT-160 $499.95**

AT-180

Fully automatic 100 W tuner styled for the IC-706. HF/6 meters. **HRO Price: $519.95**

Random Wire



AH2A

This tuner includes a control unit for direct connection to the IC-735. Use with other Icom HF radios with the proper matching cable. Tunes back-stays on a sailboat. Has optional bumper mount and whip (AH2B). **HRO Prices: AH2A $669.95; AH2B $269.95**

AH3

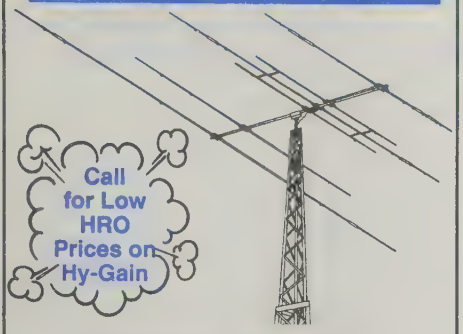
This automatic tuner, designed to use with the IC-738, 737A, 728, 725 and IC-707, features automatic digital control tuning and eight frequency memories. Use with the optional AH-2b antenna element for mobile operation. **HRO Price $549.95**

hy-gain by Telex

Your Performance Advantage

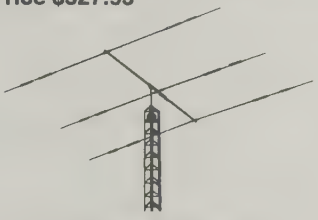
Innovation • Value • Customer Service

HF Tribanders



Explorer 14 (395S)

Give your sold state transceiver a break; the Explorer 14 is the most broadbanded HF antenna around. Our exclusive Para-Sleeve design optimizes bandwidth without a tuner. Best performance on a 14' boom. A 30 or 40 meter add-on kit is available for added coverage. **Suggested List Price $527.95**



TH3 Mk4 (388S)

The classic design in a small tribander. Performance and value in one small package. Perfect for home stations, this antenna is the choice for DXpeditions too! **Suggested List Price $380.95**

TH7 DX (391S)

Nothing performs like the world famous TH7 DX! This high performance tribander gives you the competitive edge you want on 10, 15, and 20 meters. **Suggested List Price $795.95**

DB-1217

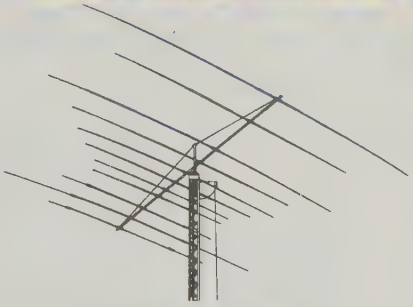
The DB-1217 features a 14 foot boom in 4 pieces ideal for Dxpedition packaging. The antenna covers the 12 and 17 meter bands, handles full legal power and uses the standard Hy-Gain rugged boom to mast clamp. **Suggested List Price $TBA**

HF Vertical

DX 77 Advanced Vertical Windom

The unique design of this vertical antenna provides no-compromise performance without the need for ground radial wires. The superior mechanical design, high power capabilities and 55% greater bandwidth than competitive verticals on 20 and 40 meters make it an exceptional value. Covers the Ham bands 10 through 40 meters, including the WARC bands. Automatic band switching and low angle of radiation for DX. Features double-wall tubing, steel mast clamps and stainless steel hardware. 29' tall, it has a new easy-tilt mount making it convenient to lower for tuning. May be mounted on a pole, chimney, rooftop, or deck, or used for portable operation. Comes with Telex's 2 year limited antenna warranty. **Suggested List Price $419.95**

Five HF Bands



TH11 DX (398S)

A unique design giving you the frequency coverage of a log periodic plus the performance of a monobander. Covers 10, 12, 15, 17, and 20 meters with one boom and feedline. **Suggested List Price $1079.95**

VHF/UHF Base Antennas

2m / 440 MHz V42R (331S)

Expand your capabilities with this dual band performer. This omni-directional antenna gives you 3 dBd gain on 2 meters as well as 5 dBd on 70 cm. Comes complete with a type N connector. **Suggested List Price $159.95**

440 MHz V4R (337S-1)

You can't beat this antenna! With wind survivability to 220 M.P.H., the V4R provides 3 dBd gain with a wide coverage pattern. It features two colinear 5/8 wave antennas fed in phase along with 2 sets of radials that decouple the lower radiator from the mast. Tunable from 400-475 MHz. Comes with a type N connector. **Suggested List Price $98.95**

2m V2R (335S-1)

A rugged antenna for 2 meters, the V2R provides 3 dBd gain with a wide coverage pattern. It features two collinear 5/8 wave antennas fed in phase along with 2 sets of radials that decouple the lower radiator from the mast. Tunable from 138-175 MHz with wind survivability to 120 M.P.H. **Suggested List Price $99.95**

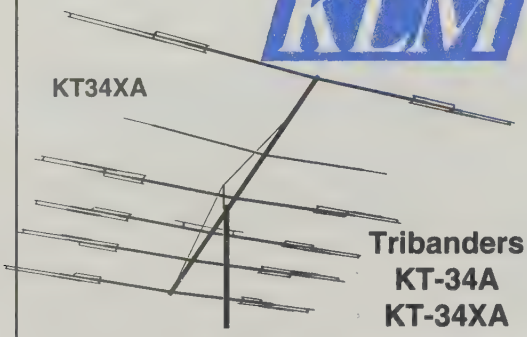
NEW!

6m V-6R

The V-6R antenna design is based on 2 collinear 5/8 wave vertical radiators and covers 51 to 54 MHz. The antenna has a 500 watt enclosed coil and two sets of 1/4 wave radials which provide complete mast decoupling and optimum pattern and gain. The rugged design will withstand wind speeds up to 80 MPH. The V-6R also features a DC ground for lightning protection. Call HRO for pricing.

HF ANTENNAS

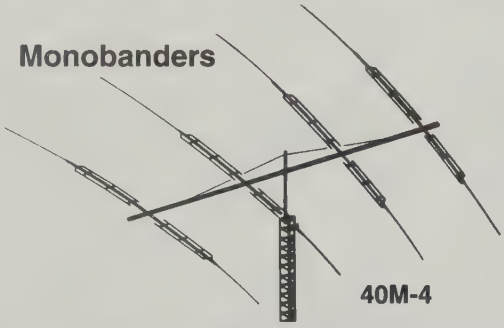
KLM



Tribanders
KT-34A
KT-34XA

The KT-34A and KT-34XA are pacesetters for triband performance. The four element KT-34A offers an unusually compact solution for a three-band high performance installation. The six element KT-34XA outperforms all other commercially available tribanders. The performance of these antennas comes from the application of lossless linear loading and high-Q air capacitors.

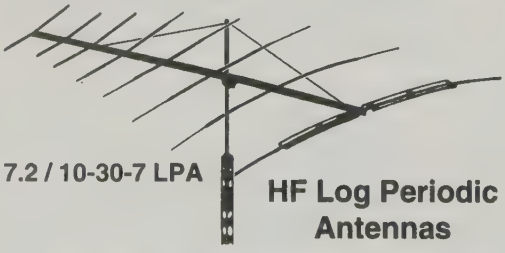
Monobanders



"World Class Extra" antennas are designed to satisfy the serious DX operator. The **80M-3**, **40M-4** and the 20m, 15m and 10m 6-element monobanders offer the ultimate in performance with no compromises. They are designed to achieve maximum gain, bandwidth and front-to-back ratios. All World Class Extra antennas use nonresonant Phillystran cable for element and boom-support.

160m Vertical

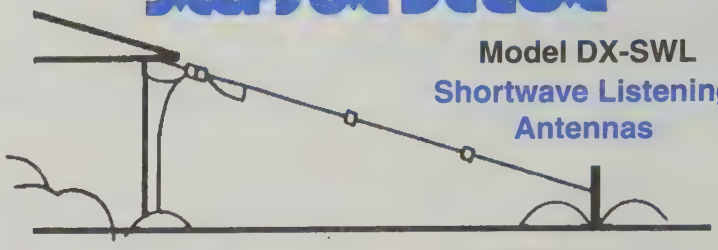
160V is center load for 160m. Use with ground or radials. A compact solution to your 160m needs.



HF Log Periodic Antennas

KLM's log periodics offer extended coverage of the amateur bands. The 10-30-7 LPA covers 20, 15, and 10m plus the WARC bands. The addition of a 40M-1 dipole provides 40m as well and the antenna is the 7.2 / 10-30-7 LPA. For continuous coverage from 6-30 MHz use the 6-30-15 LPA. The 12-8 LPA covers 6-12 MHz.

ALPHA DELTA



Model DX-SWL
Shortwave Listening Antennas

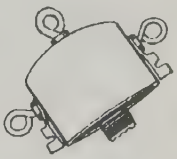
The **DX-SWL** model is tuned for the most popular SWL bands (13, 16, 18, 19, 21, 25, 31, 41, 49, 90 and 120 meters). It can be used as a multi-band transmit antenna with the appropriate antenna tuner. Length is 60 feet. Requires a single support. Standard coax connects antenna to your radio. Feed point is 50 ohms. SO-239 connection. **HRO Price $69.95**

The **DX-ULTRA** has extremely low noise performance. Tapered wing design allows broadband operation. Designed with ISO-RES inductors and parallel wire elements. Covers MW, tropical, SW, government, military, embassy, maritime, aircraft and commercial frequencies. 80 feet long. Configure as a dipole, inverted-vee, or sloper. **HRO Price $109.95**

VAN GORDEN

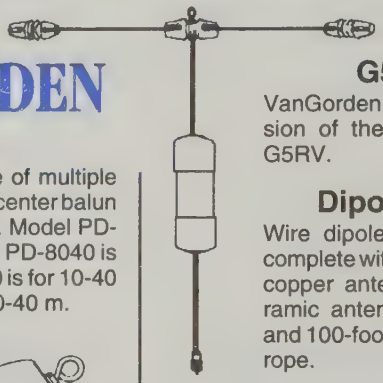
Parallel

These models are made of multiple dipoles connected at the center balun and fed at this one point. Model PD-8010 is for 10-80 meters, PD-8040 is for 40 and 80 m, PD-4010 is for 10-40 m, and PD-4020 is for 20-40 m.



Baluns / Insulators

Egg insulators. Center and end insulators. 1:1 and 4:1 Baluns.



G5RV

VanGorden makes a version of the very popular G5RV.

Dipole Kits

Wire dipole antenna kits complete with a Hi-Q balun, copper antenna wire, ceramic antenna insulators, and 100-foot nylon support rope.

Standard Length

Models D-10 for 10 meters, D-15 for 15 m, D-20 for 20 m, D-40 for 40 m, and D-80 for 75 / 80 m.

Shortened

Models SD-40 for 40 m and SD-80 for 75 / 80 m.

Van Gorden Antennas

Model	Type	Band	Length ft (m)	Power PEP	Wire Size	HRO Price
D-10	Standard Dipole	10	16(4.9)	2KW	#14	$25.95
D-15	Standard Dipole	15	22(6.7)	2KW	#14	$26.95
D-20	Standard Dipole	20	33 (9.9)	2KW	#14	$27.95
D-40	Standard Dipole	15/40	66 (19.8)	2KW	#14	$28.95
D-80	Standard Dipole	75/80	130 (39)	2KW	#14	$31.95
ALL-BANDER	Standard Dipole	160-10 *	134 (40.8	2KW	#14	$29.95
SHORTY	Dipole	160-10 *	70(21)	2KW	#14	$39.95
SD-40	Shortened Dipole	40	45 (13.5)	2KW	#14	$33.95
SD-80	Shortened Dipole	75/80	90 (27)	2KW	#14	$35.95
PD-8010	Parallel Dipole	10 to 80	130 (39)	2KW	#14	$43.95
PD-8040	Parallel Dipole	15/40/80	130 (39)	2KW	#14	$39.95
PD-4010	Parallel Dipole	10, 20, 15/40	66 (19.8)	2KW	#14	$37.95
PD-4020	Parallel Dipole	20, 15/40	66 (19.8)	2KW	#14	$33.95
G5RV	Dipole	3.5-30 MHz	102(31)	2KW	#14	$49.95

* Antenna tuner required

Force 12

Classic Tribanders

C Series

Force 12 has the finest lineup of antennas covering the classic 20-15-10 bands with a single feedline. The antennas feature gain of 17 and 12 meters with a VSWR of about 2.8:1, easily matched with any tuner. All are trapless and are acclaimed as outperforming all the various trapped antennas.

The C-3 is the first model in Force 12's classic 3-band series. After 2 1/2 years of development, the 18' boom design with 7 elements provides the finest performance ever offered in a tribander. It has an effeciency greater than 98%, and our customers tell us that the C-3 outperforms every trapped antenna, regardless of boom length. Now the unbeatable C-3 performance has been extended to a smaller footprint.

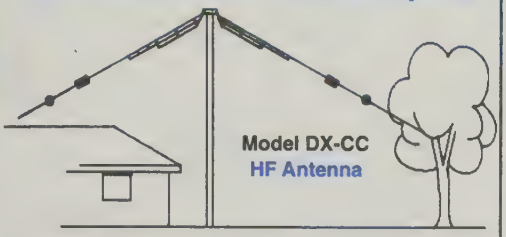
The C-3S incorporates a redesigned 10-meter section allowing the boom to be only 12'. The trade-off is the C-3S covers about 1.1 MHz (i.e. 28.200-29.300) with a 2:1 VSWR, where the C-3 covers the entire 10 meter band. The gain of the C-3S is within .1 to .2 dB of the C-3.

The C-3S can also cover 40 meters with 130 kHz 2:1 VSWR. This is the C-4S. The C-4C conversion can make the C-3S into a C-4S in the field. Also available is the C-3XL, a composite of larger monobanders.

C-3 20-10 m, 18' boom.
C-3S 20-10 m, 12' boom.
C-4 40-10 m, 18' boom.
C-4S 40-10 m, 12' boom.
C-3SL 20-15-10 m (3-element 20, 3-element 15, 4-element 10, all with separate feedlines for maximum versatility).
C-4XL 40-10 m, 30' boom (includes 2 elements on 40).
C-4SXL 40-10 m, 23' boom (includes 2 elements on 40).

ALPHA DELTA

HF Antennas for Limited Space



Model DX-CC: A no trap 80-40-20-15-10 meter dipole. 82' long. **HRO Price $99.95**

Model DX-DD: A no trap 80-40 meter dipole. 82' long. **HRO Price $79.95**

Model DX-EE: A no trap 40-20-15-10 meter dipole. Only 40' long. **HRO Price $89.95**

All the limited space antennas use stainless steel hardware where required, are fully assembled, and are manufacturered to withstand severe weather. SO-239 connectors.

Model DX-A: A quarter wave twin sloper for 160-80-40 meters. One leg is 67' and the other 55'. Installs as an inverted-V. **HRO Price $59.95**

Model DX-B is a single wire, high performance quarter wave sloper antenna for 160, 80, 40 and 30 meters. For limited space, the antenna requires only 60 feet for installation, should be used with a wide range antenna tuner. Pre-assembled and pre-tuned. Has stainless steel hardware, 12 gauge insulated solid copper wire and the Alpha Delta "ISO-RES" RF choke coils, 50 ohm coax feed. Full legal power. **HRO Price $69.95**

BUTTERNUT

Multi-band HF Verticals

HF9V-X

More efficient than conventional trapped designs or "halfwave" verticals, the exclusive Butternut Differential Reactance Tuning system allows more of the antenna to be active on each band, for greater bandwidth, lower radiation angle, and superior performance!

- 9 bands, 80 thru 6 meters.
- No-radial operation with CPK counterpoise.
- Highly efficient 26 foot vertical radiator.

HF2V –>

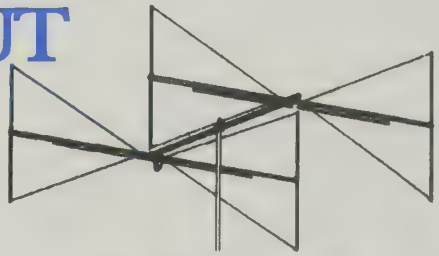
Are you ready for the sunspot shortage when the action will be on 80 and 40? Be prepared with the HF2V. The entire antenna radiates on both bands for low radiation angle and maximum performance.

- Dual-band optimized for 80 and 40 meters.
- 32 feet tall; no guying required.
- 160 or 30 Meters with optional adapters.

<– HF6V-X

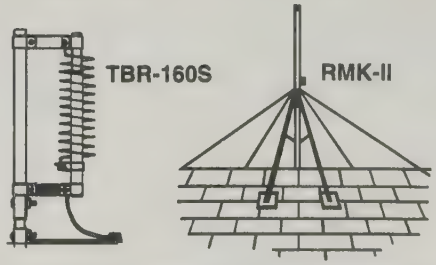
Work the 6 most popular bands–80, 40, 30, 20, 15 & 10 meters–with a single, highly efficient vertical radiator only 26 feet tall!

- No radial operation with CPK counterpoise.
- Add 160, 17 & 12, or 6 m with optional adapters.



HF5B "Butterfly" Beam

Five popular bands in a single lightweight 2 element beam antenna. Ideal where space is limited, the HF5B provides up to 3 dBd on 20, up to 5 dBd on 15, 12, and 10. Light enough to turn with a TV rotator, the HF5B has a 6 foot boom and a wingspan of only 12.5 feet. Weighs only 20 pounds; surtace area is 3 square feet.



Vertical Antenna Accesories

CPK Counterpoise kit for HF9V-X, HF6V-X. Allows operation with no radial system.

TBR-160S 160 Meter kit for HF9V-X, HF2V or HF6V-X. Not recommended for CPK.

STR-II Resonant radial kit for above ground mounting of Butternut verticals.

RMK-II-Roof mounting kit. Includes STR-II.

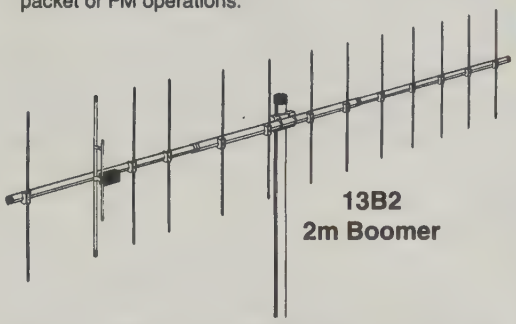
A-17-12 Adapter for 17 and 12 meters for 6 band Butternut verticals.

VHF / UHF Boomers

Cushcraft boomers are so efficient, powerful and successful that they defy comparison. They have established new VHF / UHF distance records and their computer based design has become the standard for others to emulate.

All boomers have stainless steel hardware.

The **13B2** will be your choice for performance across the 2 meter band. Its 15' boom makes it a popular antenna that fits just about anywhere for sideband, packet or FM operations.



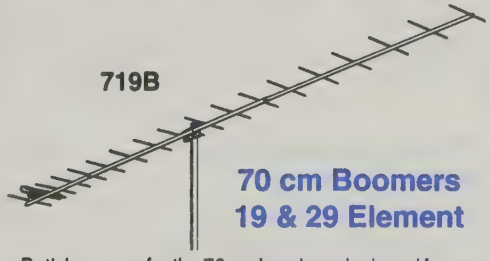
13B2
2m Boomer

The 31' **17B2** has a forward gain of 18.0 dB, an incredibly clean pattern, and excellent front to back ratio. The UltraMatch feed system with N-connector provides optimum efficiency.

For serious 6 meter operators, the 34' **617-6B** has 6 elements and 15.8 dB gain.

For the 222 MHz band, choose the **224WB** 4 element or **225WB** 15 element for SSB/CW,FM simplex and repeater operation.

124WB	144-148 MHz	4 elements - SO-239
13B2	144-148 MHz	13 elements - SO-239
13B2N	144-148 MHz	13 elements - N conn
17B2	144-145 MHz	17 elements - N conn
26B2	144-148 MHz	26 elements - SO-239
224WB	220-225 MHz	4 elements - SO-239
225WB	220-225 MHz	15 elements - SO-239
617-6B	50-51 MHz	6 elements - SO-239



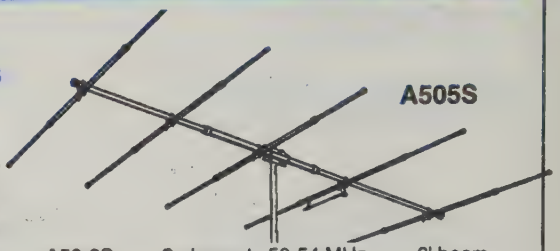
719B

70 cm Boomers
19 & 29 Element

Both boomers for the 70 cm band are designed for easy assembly with stainless steel hardware. The feed systems employ a UM4N balun enclosed in a UV stabilized housing. The 13.5-foot-long 719B offers enhanced performance in the 70 cm band with a gain of 15.5 dB. Mount it vertical for FM or horizontal for CW and sideband. The 729B is the new leader in 70 cm performance with a forward gain of 17.8 dB. Its modified T-match allows for increased bandwidth over conventional T-matches.

6 Meter Yagis

6 Meter Yagis



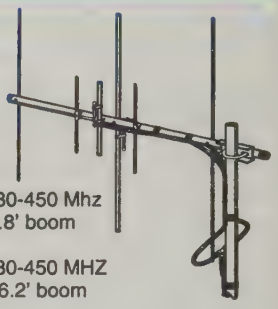
A505S

Enjoy the new popularity of the 6 meter band with an S-series yagi. Computer aided modeling and stainless steel hardware were used by Cushcraft to optimize the performance of our popular 6 meter yagis.

A50-3S	3 element	50-54 MHz	6' boom
A50-5S	5 element	50-54 MHz	12' boom
A50-6S	6 element	50-54 MHz	20' boom

Dual-Band Yagis

2m / 70cm Dual Band



A270-6S

Increase your range by selecting one of the new Cushcraft dual band Yagis. Direct more of your output power when transmitting while reducing interference and increasing signal strength when receiving. Select the antenna for your station depending on the distance of your contacts.

A270-6S	144-148 / 430-450 Mhz 6 element 2.8' boom 7.8 dB
A270-10S	144-148 / 430-450 MHZ 10 element 6.2' boom 10 dB

VHF / UHF SSB / CW Yagis

70 cm & 2 Meter Yagis

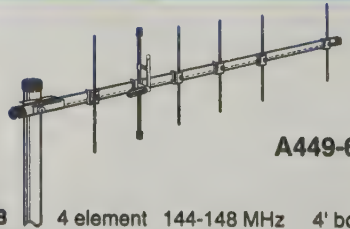
A148-10S

These lightweight and durable antennas feature good bandwidth, tapered length elements, 50-Ohm no-balun feed with SO-239 connector and protective boot. You'll hear many still on the air after more than 25 years.

A144-10SN	10 element	144-148 MHz	N Conn
A148-10S	10 element	144-148 MHz	12' boom
A430-11S	11 element	430-435 MHz	5' boom
A430-6SN	6 element	430-440 MHz	N Conn
A430-11S	11 element	430-435 MHz	5' boom
A430-11SN	11 element	430-440 MHz	N Conn

VHF / UHF Yagis

3-4-6-11-20 Element



A449-6S

FM Yagis are specifically cut for FM amateur frequencies and vertical polarization. The four and six element models have end brackets for tower or mast side mounting. They feature Reddi-Match driven elements with direct 50 Ohm feed, compact size, good gain and front-to-back ratio. Count on quick and easy assembly. **Great antennas for packet operation.**

124WB	4 element	144-148 MHz	4' boom
A148-3S	3 element	146-148 MHz	3' boom
A148-10S	10 element	144-148 MHz	12' boom
A148-20S	20 element	144-148 MHz	12' boom
A449-6S	6 element	440-450 MHz	3' boom
A449-11S	11 element	440-450 MHz	4' boom
A148-20T	20 element	144-148 MHz	11' boom

World Ranger Series

Multi-Band Beams

The four-element A4S with stainless steel hardware outperforms other beams in day-to-day operation and the tough competition of contests. It has achieved the success of DXCC in only two days. The combination of precisely tuned traps with excellent spacing to element length ratios make the A4S a proven winner. Designed for easy assembly, the A4S is light weight, built to last and has a clean profile to reduce wind load. The A3S, with all stainless steel hardware, is the most popular three element, three-band beam available today. It has plenty of gain and good front-to-back ratio. Great performance is yours with a clean profile beam that can be mounted on a lightweight tower and rotator in a very small space. Rugged design features insure many years of trouble-free operation.

A3S 10, 15, 20 m, 3-element, 8.0 dBd gain
A3SDX Smaller package A3S for easy travel
A4S 10, 15, 20 m, 4-element, 8.9 dBd gain

World Ranger Four-Band Upgrade Kits

Convert Cushcraft A3S and A4S beams to four bands with this simple add-on kit. You'll be able to work the 40 meter DX when sun spots are low. With an easy adjustment, the new 10 MHz WARC band is available.

A743 30 or 40 meter kit for A3S
A744 30 or 40 meter kit for A4S

Rotatable Dipoles

These dipoles give bi-directional performance and rotatable convenience. You can mount them high and away from the trees for much better performance than a wire dipole. Our single and multi-band dipoles feature high-performance traps, heavy wall tubing, and rugged hardware for years of reliable operation.

D40 40 meters
D4 10, 15, 20, 40 meters
D3 10, 15, 20 meters
D3W 12, 17, 30 meters

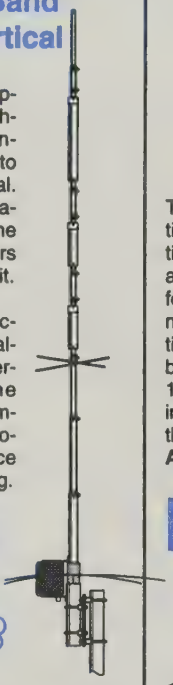
WARC Band Beam A3WS

The A3WS 3-element beam gives full performance on 12 and 17 meters. With the addition of our easy-to-use A103 add-on kit, it will also cover 30 meters. It needs only a lightweight tower and rotator or you can mount it above your existing tribander. A3WS features include pinned boom sections, heavy duty element clamps with backing plates plus all stainless steel hardware.

A3WS 18, 24 MHz
A103 10 MHz (30 meter) kit for A3WS

HF Verticals

R7000 Upgradable 7 Band Vertical



After months of development and testing, Cushcraft is pleased to announce the successor to the popular R-7 vertical. The R7000 has all the features of the R-7 plus the ability to add 80 meters with the optional R-80 kit.

It has controlled inductance traps making installation and all weather performance easy. The AL6063 cover design completes the LC circuit providing stable capacitance and high power handling.

It's the one you've asked for. Amateur radio's **Most Popular** vertical design now gives you 30 and 40 meters with **No Ground Radials**!

Only 24 feet tall, the R7000's small footprint and ground independence give you "mount-anywhere" flexibility. Assembly is a snap.

Automatic frequency selection and 7 short counterpoise rods let you concentrate on DXing, contesting, or rag-chewing from your apartment, condo, or motorhome. Convenience is only one reason to own an R7000. The main reason is performance–pile-up-breaking power made possible by the R7000's low angle of radiation.

Experience amateur radio's highest performance-to-size ratio–now on all amateur HF bands (optional R-80 kit required for 80 meters).

Most Economical Vertical HF Antennas

Economical high-performance antennas for today's active multi-band station. Automatic switching, broad-band enclosed traps. These verticals may be roof or ground mounted.

AV3 10, 15, 20 meters
AV5 10, 15, 20, 40, 80 meters

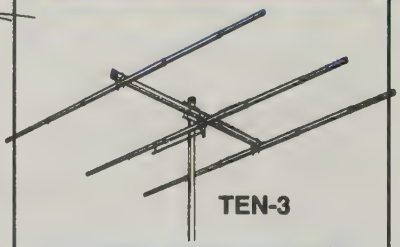
Log Periodic

Skylog

This log periodic is the most cost effective, high gain, five band antenna solution on the market today. Gain (6.4 dB) and beamwidth (65 deg.) are constant for uniform coverage from 10 to 20 meters. The Skylog is rated for continuous duty at full legal power. The boom is 18 feet and the turning radius 19.5 feet. Stainless steel hardware and incredibly rugged element design make this antenna a "survivor."

ASL-2010 13.5 to 32 MHz

10 Meters



10-Meter Monobander

Our 3-element beam is perfect for the novice or any other ham who wants high gain with a good front-to-back ratio on 10 meters. This antenna with its 8 foot boom is easy to install on a simple mount with only a lightweight rotator. The matching system is our proven Reddi-Match for 50 Ohm, no balun feed and SO-239 connector. Make more contacts with the **TEN-3**.

TEN-3 3 element 8.0 Bd gain

10 Meter Mobile

CS28M is a magnet mount mobile for 10 meters. It is an ideal companion to those new 10 meter multimode rigs. Cushcraft / Signals mobiles are recognized by professional users around the world for their rugged good looks and dependability. The antenna comes complete with 49" stainless steel whip and spring, 90 pound pull chrome-plated magnet with Protective Mylar® pad, twelve feet of high quality RG-58AU coax, and PL-259 connector. You'll be on the air in a matter of minutes, operating mobile to Munich and many more DX locations.

cushcraft

Mag Mount Mobiles

NEW!

Project Gold Dual Band Mobile 2m and 70cm

These slim-line, aerodynamic design antennas provide 5.5 dB on 440 and 3.7 dB on 2 meters. The Gold series features a solid brass base which is nickel plated, then black powder coated. The antennas have a stainless steel spring, nickel plated base contact, gold plated center contact, and a weather resistant rubber O-ring around the base. Both the base matching network and center phasing coil resist shock, temperature, and vibration inside Delrin® Easy Touch™ protection. The antennas feature lift and tilt-over, a heavy duty stainless steel whip, and a 5 year warranty. Many components meet MILSPEC requirements. Available with mag-mount or mount to existing 3/4" roof mount.

CG270AS Dual Band Mobile Antenna 144-148 / 440-450 MHz
CG270AE Dual Band Mobile Antenna 144-146 / 430-440 MHz
CG144A 2m Mobile antenna, 144-148 MHz
CG144AE 2m Mobile antenna, 144-146 MHz

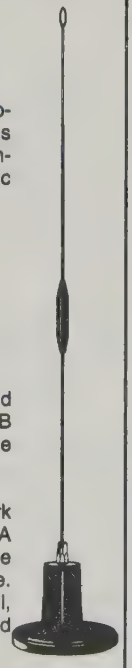
Mag Mounts for Above
CSMG 90lb, PL-259, UltraLink® less loss Teflon® coax
CSMGN 90lb, N-Conn, UltraLink® less loss Teflon® coax
CGMG 165lb, PL-259, UltraLink® less loss Teflon® coax
CGMGN 165lb, N-Conn, UltraLink® less loss Teflon® coax

Gold Series antenna shown with the optional CGMG

VHF / UHF Mobile Antennas

Cushcraft high performance, better-value mobile antennas have sleek black ABS housings with stainless steel springs and tapered stainless whips. All include coax and magnetic mount with 90 pound pull magnet.

CS50M 50-54 MHz
CS147M 144-174 MHz
CS220M 220-225 MHz
CS450M 435-470 MHz



Dual Band Mobile CS-270M

The perfect companion for your dual band transceiver is the **CS-270M.** It offers 3.7 dB gain on 2 meters and 6.0 dB on 70cm in one compact 36.5 inch antenna.

The base has a unique matching network designed on a rugged P.C. board frame. A small phasing coil is insert molded into the antenna rod making it impervious to moisture. The magnetic mount features 90 pound pull, protective mylar pad, low loss feedline and PL-259 connector.

Ringo Rangers

ARX-6
6 M Ringo Ranger

The ARX-6 combines compact size with great bandwidth. It was developed to meet the needs of serious 6 meter FM hams. It has twice the gain of the standard AR-6. If you are a serious 6-meter FM ham requiring the most gain and wide-area coverage from a repeater or home station, the ARX-6 is made for you.

ARX-6

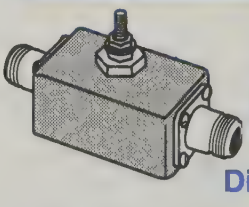
ARX-6
6 meters, 50-54 MHz, 24' tall

Ringo Rangers for the Impossible QTH!

Ringo half-wavelength verticals feature a low angle of radiation and direct DC ground for lightning protection. The Ringo is very easy to assemble and comes in models for all popular VHF and UHF frequencies.

AR-2 2 meters, 135-160 MHz 4' tall
AR-6 6 meters, 50-54 MHz 10' tall
AR-10 10 meters, 28-29.7 MHz 18' tall

Lightning Arresters



Fast Action Gas Discharge

Protect your valuable equipment while reducing atmospheric noise with these sophisticated new lightning arresters. They feature fast action, replaceable gas discharge elements. Superior design and manufacturing gives better performance with less insertion loss.

LAC4 200 watt w/ SO-239 connector
LAC4H 2 kW with SO-239 connector
LAC4N 200 watt with N-connector
LAC4NH 2 kW with N-connector
LC2 200 watt replacement cartridge
LC2KW 2 kW replacement cartridge

Call Toll-Free for Cushcraft Discounts

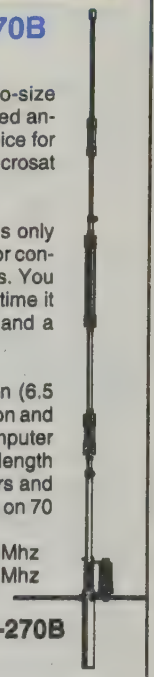
AR-270 and AR-270B Dual Band

The highest performance-to-size ratio is yours with these rugged antennas. They're the right choice for repeater, simplex, packet or microsat operation.

The **AR-270** "Dual Wonder" is only 3.75 feet high and is perfect for condos and other restrictive QTH's. You will be up and running in the time it takes to tighten two clamps and a PL259.

The **AR-270B** gives high gain (6.5 dB) with a low angle of radiation and is only 7.7 feet high. It is computer optimized with two 5/8 wave-length collinear elements on 2 meters and four 5/8 wavelength elements on 70 cm.

AR-270 144-148 / 430-450 Mhz
AR-270B 144-148 / 430-450 Mhz



AR-270B

ARX-270 Fiberglass Dual-Band

Cushcraft's high performance, fiberglass base antenna has a gain of 9 dB on VHF and 12 dB on UHF. It features non-metallic couplings, thick-wall fiberglass, extruded base clamps, factory tuning, and factory-installed pigtail with choice of UHF or N connector. UPS shippable.

ARX-270 144-148 / 430-450 MHz 16.5' tall

Ringo Ranger II

Ringo Ranger II (**ARX-2B**) has more gain, less wind load, and better mechanical strength than most other 2 meter antennas. You'll find FM repeater or simplex and packet operation more satisfying with this amazing antenna. Three 5/8 wave radiating elements and an adjustable 1/8 wave phasing stub give 7 dB gain over a 1/4 wave whip. The antenna has RF decoupling radials and is DC grounded for lightning protection. There are more Ringo Rangers in use than **ANY OTHER** base station ham antenna.

ARX-2B 135-160 MHz 14' high

ARX-2B

Ringo Ranger

A fantastic antenna. The Ringo Ranger should be your antenna where good gain is required, but space does not allow extra height and decoupling radials. 5.5 dB gain.

ARX-2 135-160 MHz 9.3' high

Cushcraft HF Antennas

Model	Bands	Ele	Max Gain Bd	Max F/B dB	Min SWR	Boom Length		Boom Diameter		Longest Ele(Ht)		Turning Radius		Max Mast Dia		Wind Surf Area		Shipping Weight		HRO Price
						FT	M	FT	M	FT	M	FT	M	IN	CM	SQFT	SQMT	lbs	kg	
R7000	40 30 20 17 15 12 10 meters	1			<1.2:1					24	7.3			2 1/8	5.4	2	0.19	21	9.5	$379.95
R80 Kit	80m for R7000	1			<1.2:1					34.5	10.5			2 1/8	5.4	4	0.37	7.5	3.4	$129.95
A3S	20 15 10 meters	3	8	25	<1.2:1	14	4.3	1.5	3.8	27.8	8.5	15.5	4.7	2	5.1	4.4	0.041	30	13.6	$329.95
A743 Kit	40m for A3				<1.2:1					35	10.7	15.5	4.7	2	5.1	0.06	0.06	7	3.2	$129.95
A3WS	17 12 meters	3	8	25	<1.2:1	14	4.3	1.5	3.8	25	7.6	14.4	4.4	2	5.1	4.1	0.38	26.5	12	$279.95
A103 Kit	30m for A3WS				<1.2:1					32	9.8	14.4	4.4	2	5.1	0.04	0.04	6	2.7	$109.95
A4S	20 15 10 meters	4	8.9	25	<1.2:1	18	5.5	2	5.1	32	9.8	18.4	5.6	2	5.1	5.5	0.51	38	17.2	$419.95
A744 Kit	40m for A4S				<1.2:1					35	10.7	18.4	5.6	2	5.1	0.3	0.03	7.5	3.4	$129.95
ASL2010	20 17 15 12 10 meters	8	6.4	20	<1.2:1	18	5.5	2	5.1	38	11.6	19.3	5.9	2	5.1	10.1	0.94	59	26.7	$749.95
TEN-3	10 meters	3	8	25	<1.2:1	8	2.4	1.4	3.5	18	5.5	9.8	3	2	5.1	2	0.19	10.5	4.8	$129.95
10-4CD	10 meters	4	10	30	<1.2:1	16	4.9	1.8	4.4	17.5	5.3	11.5	3.5	2	5.1	3.1	0.29	25	11.3	$239.95
15-4CD	15 meters	4	10	30	<1.2:1	20	6.1	2	5.1	23.3	7.1	15.4	4.7	2	5.1	4.5	0.42	31	14.1	$299.95
20-3CD	20 meters	3	8	30	<1.2:1	20	6.1	2	5.1	36	11	20	6.1	2	5.1	5.5	0.51	37	16.8	$389.95
20-4CD	20 meters	4	10	30	<1.2:1	32	9.8	2.1	5.4	36	11	23.8	7.3	2	5.1	8.1	0.75	57	25.8	$469.95
40-2CD	40 meters	2	5.5	20	<1.2:1	13	4	2.1	5.3	43	13.1	24	7.3	2	5.1	6.4	0.59	46	20.9	$449.95
D3	20 15 10 meters	1			<1.2:1					26	7.9	4	1.2	2	5.1	0.9	0.08	11	5	$189.95
D3W	17 12 meters	1			<1.2:1					34	10.4	5	1.5	2	5.1	0.9	0.08	13	5.9	$179.95
D4	40 20 15 10 meters	1			<1.2:1					36	11	5.5	1.7	2	5.1	1.3	0.12	15.5	7	$279.95
D40	40 meters	1			<1.2:1					42	12.8	6.5	2	2	5.1	1.7	0.16	15	6.8	$229.95
AR-10	10 meters	1			<1.2:1					17.6	5.4			1 1/4	3.2	1 2/3	0.16	5	2.3	$59.95

Cushcraft VHF / UHF Antennas

Model	Frequency Coverage	Ele	Max Gain Bd	Max F/B dB	Conn	Polarization		Boom Length		Longest Ele(Ht)		Turning Radius		Max Mast Dia		Wind Surf Area		Shipping Weight		HRO Price
						Horz	Vert	FT	M	FT	M	FT	M	IN	CM	SQFT	SQMT	lbs	kg	
124-WB *	144-148	4	10	24	U	Y	Y	4	1.2	3.4	1	4	1.2	2	5.1	0.34	0.03	3.5	1.6	$69.95
13B2	144-148	13	15.8	26	U	Y	Y	15	4.6	3.4	1	8.9	2.7	2	5.1	1.8	0.17	9.5	4.3	$109.95
13B2N	144-148	13	15.8	26	N	Y	Y	15	46	3.4	1	8.9	2.7	2	5.1	1.8	0.17	9.5	4.3	$139.95
26B2	144-148	26	18.8	26	U	Y	Y	15	4.6	3.4	1	10.4	3.2	2	5.1	4.8	0.45	25	11.3	$339.95
17B2	144-145	17	18	26	N	Y	N	31	9.4	3.4	1	17.3	5.3	2	5.1	3.9	0.36	18	8.2	$179.95
224-WB *	222-225	4	10	24	U	Y	Y	3	0.09	2.2	0.7	3	0.9	2	5.1	0.23	0.02	2.5	1.1	$66.95
225-WB	222-225	15	15.5	24	U	Y	Y	10	3	2.2	0.7	5.8	1.8	2	5.1	0.95	0.09	6.5	2.9	$124.95
719-B	430-450	19	15.5	25	N	Y	Y	13.5	4.1	1.2	0.4	7.3	2.2	2	5.1	1.2	0.11	7.5	3.4	$129.95
729-B	430-440	29	17.8	25	N	Y	N	22.2	6.8	1.2	0.4	12.5	3.8	2	5.1	2.2	0.2	11.5	5.2	$189.95
A50-3S	50-54	3	8	20	U	Y	N	6	1.8	9.8	3	6	1.8	2	5.1	1.8	0.17	8.5	3.9	$94.95
A50-5S	50-54	5	10.5	24	U	Y	N	12	3.7	9.8	3	7.5	2.3	2	5.1	2.7	0.25	13	5.9	$139.95
A50-6S	50-54	6	11.6	26	U	Y	N	20	6.1	9.8	3	11	3.4	2	5.1	4.5	0.42	22	10	$239.95
617-6B	50-51	6	15.8	30	U	Y	N	34	10.4	9.5	2.9	17.7	5.4	2	5.1	4.8	0.45	32	14.5	$319.95
A148-3S	144-148	3	7.8	25	U	Y	Y	2.8	0.9	3.3	1	2.8	0.9	2	5.1	0.27	0.03	3	1.4	$45.95
A144-10SN	144-146	10	13.2	24	N	Y	Y	12	3.7	3.3	1	6	1.8	2	5.1	1.2	0.11	7	3.2	$89.95
A148-10S	144-148	10	13.2	24	U	Y	Y	12	3.7	3.3	1	6	1.8	2	5.1	1.2	0.11	6	2.7	$79.95
A148-20S	144-148	20	16.2	24	U	Y	Y	12	3.7	3.3	1	6.6	2	2	5.1	2.8	0.26	15	6.8	$199.95
A148-20T	144-148	20	11.1	20	U	Y	Y	10.8	3.3	3.3	1	6.8	2.1	1.5	3.8	1.4	0.13	7.5	3.4	$99.95
A430-6SN	430-440	6	10.5	18	N	Y	Y	2.9	0.09	1.1	0.3	2.9	0.9	2	5.1	0.3	0.03	2.5	1.1	$89.95
A449-6S*	440-450	6	10.5	18	U	Y	Y	2.9	0.09	1.1	0.3	2.9	0.9	2	5.1	0.3	0.03	2.5	1.1	$56.95
A430-11S	430-440	11	13.2	20	U	Y	Y	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	0.39	0.04	3.5	1.6	$81.95
A430-11SN	430-440	11	13.2	20	N	Y	Y	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	2/5	0.04	3.5	1.6	$95.95
A449-11S	440-450	11	13.2	20	U	Y	Y	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	0.39	0.04	3.5	1.6	$81.95
A270-6S	144-148	3	7.8	20	U	Y	Y	2.8	0.09	3.4	1	2.8	0.9	2	5.1	0.3	0.03	3.5	1.6	$59.95
	430-450	3	7.8	18	U															
A270-10S	144-148	5	10	20	U	Y	Y	6.2	1.9	3.4	1	6.2	1.9	2	5.1	0.73	0.07	5	2.3	$88.95
	440-450	5	10	18	U															
22XB	144-148	22	14	25	U	N	Y	19.3	5.9	3.3	1	11	3.4	2	5.1	2.6	0.24	13.5	6.1	$179.95
738XB	432-438	38	15.5	25	N	N	Y	14.3	4.4	1.1	0.3	8.5	2.6	2	5.1	1.4	0.03	9.5	4.3	$179.95
AR-6	50-54		3.8		U	N	Y			10.1	3.1			1.25	3.2	0.37	0.03	4	1.8	$67.95
ARX-6	50-54		5.5		U	N	Y			24	7.3			1.75	4.4	1.9	0.18	9	4.1	$199.95
AR-2	135-160		3.75		U	N	Y			3.9	1.2			1.25	3.2	0.21	0.02	2	0.9	$47.95
ARX-2	137-160		4.5		U	N	Y			9.3	2.8			1.25	3.2	0.33	0.03	2.5	1.1	$46.95
ARX-2B	134-164		7		U	N	Y			14	4.3			1.25	3.2	0.5	0.05	3.5	1.6	$55.95
ARX-220B	220-225		7		U	N	Y			9.3	2.8			1.25	3.2	0.3	0.03	3	1.4	$69.95
ARX-450B	435-450		7		U	N	Y			5	1.5			1	1.5	0.2	0.02	2	0.9	$59.95

HUSTLER®

Multi-band HF Verticals

6-BTV / 5-BTV / 4-BTV

Models 6-BTV (10, 15, 20, 30, 40, 75 / 80 meters), 5-BTV (10-80 meters), and 4-BTV (10-40 meters) for base stations. All of these vertical antennas allow full legal limit on SSB or CW. The antennas are constructed of 1 1/4" heavy wall, high strength aluminum. Feed with 50 ohm coax. VSWR 2:1 or better at band edges on 10-40 meters and up to 100 kHz on 75 / 80 meters.

30-MTK

Add the 30 meter band to the 4-BTV or 5-BTV with the 30-MTK. This will provide full band coverage of the 30 meter band and will not affect normal operation of the other bands. The modification is easy to install with all hardware required included. **HRO Price $41.95**

2m Verticals

G6-144B

G7-144

The G7-144 is designed for fixed station or repeater operation. The antenna provides 7dB gain with an extremely low angle of radiation. It is constructed of high strength aluminum and fiberglass using stacked 5/8 wave radiators. Uses a type "N" connector.

G6-144B

The G6-144B is a 6dB gain antenna for base or repeater use. The antenna is totally self supporting and is constructed of high-strength aluminum. Uses an SO-239 connector.

220 & 440 Verticals

G7-220

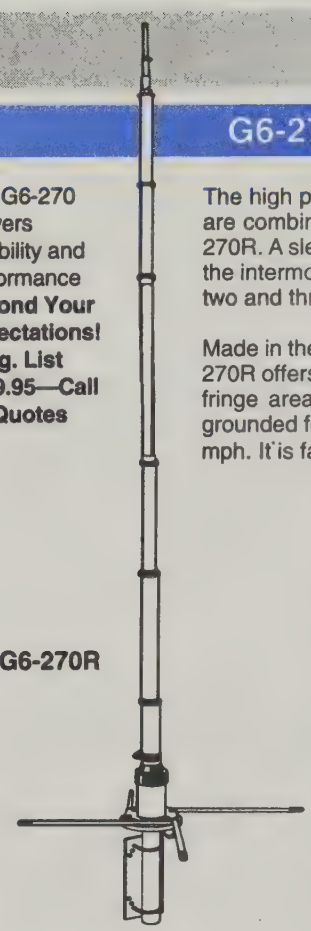
The G7-220 is of similar design and construction as the 2 meter G7-144. It is designed for base or repeater operation, provides 7dB of gain and is constructed of high-strength aluminum and fiberglass. Uses a type "N" connector.

G6-440

The G6-440 is a 6dB gain antenna for base or repeater usage for the 440 MHz band. It is provided with the vertical component assembled. The antenna is constructed from high-strength aluminum and fiberglass. Uses a type "N" connector.

G6-270R Dual Band

The G6-270 delivers reliability and performance Beyond Your Expectations! Sugg. List $189.95—Call for Quotes



G6-270R

The high performance of our well known G6-144 and G6-440 are combined in our 2 m / 440 dual band vertical, model G6-270R. A sleek, one piece tapered fiberglass radome eliminates the intermodulation and mechanical problems associated with two and three piece UHF radome designs.

Made in the U.S.A. of high quality American materials, the G6-270R offers 6 dBd gain (8.1 dBi) on both bands for outstanding fringe area performance. The antenna is shunt-fed and DC grounded for lightning protection and will survive winds to 100 mph. It is factory tuned for quick and easy installation.

Electrical

Max. Power:	200 watts
Gain:	6 dBd VHF 6 dBd UHF
Bandwidth:	3 MHz VHF 10 MHz UHF
Design:	5/8 over 5/8 VHF 4 x 5/8 UHF Shunt-fed D.C. Ground
Termination:	Type N female

Mechanical

Length:	100 inches
Weight:	6 lbs
Wind Survival:	100 mph
Mounting:	Hardware included for 1-1/2" mast. Mounting plate will accept 2" U-bolts (U-bolts not included)

Hustler Antennas

Model	Bands	Mx Gn	VSWR	Top Hat lgth in (mm)	Height ft (m)	Boom Dia in (mm)	Max Mst in (mm)	Wind load lbs (kg)	Ship Wgt lbs (kg)	Sugg. List
6-BTV	10-30-80 m	-	1.2:1	20.3 (506)	24 (7.2)	1.3 (31.3)	1.5 (38.1)	31 (14.1)	17	$209.95
5-BTV	10 to 80 m	-	1.2:1	20.3 (506)	25 (7.5)	1.8 (43.8)	1.5 (38.1)	29 (13.2)	17	$179.95
4-BTV	10 to 40 m	-	1.2:1	14.8 (369)	21.4 (6.4)	1.3 (31.3)	1.5 (38.1)	24 (10.9)	15	$134.95
G7-144*	2 m	7 dB	1.5:1	-	15.3 (4.6)	-	1.8 (43.8)	26 (11.8)	10	$189.95
G6-144B	2 m	6 dB	1.15:1	-	9.8 (2.9)	-	1.8 (43.8)	26 (11.8)	7	$129.95
G7-220*	220 MHz	7 dB	1.2:1	-	10.2 (3.0)	-	1.8 (43.8)	26 (11.8)	7	$189.95
G6-440*	440 MHz	6 dB	2.1:1	-	7.3 (2.2)	-	2.0 (50.8)	22 (10.0)	5	$169.95

* Type "N" Connector

Hustler VHF / UHF Mobile Antennas

Model	Band	Max Gain	SWR	Power	Length ft (m)	Weight lbs	HRO Price
RX-440	440 MHz	5.2 dB	1.2:1	100 W	2.3 (.72)	3	$24.95
CGT-144	2 m	5.2 dB	1.15:1	200 W	7.1 (2.1)	2	$51.95
RX-2	2m	3.4dB	1.5:1	100 W	4.2(1.3)	3	$24.95
FX-2	2m	3.4dB	1.5:1	100 W	4.2(1.3)	3	$33.95
SF-2	2 m	3.4 dB	1.2:1	100 W	4.2 (1.3)	1	$14.95
UGM	140-500 MHz	Unity				1	$21.95
SF-220	220 MHz	3.4 dB	1.2:1	100 W	2.6 (.78)	1	$14.95

Call Toll-Free For Discount Prices on Hustler Products

VHF / UHF Mobiles

Collinear

The CG-144 and CG-220 are 5.2dB gain collinear antennas for 2m and 220 MHz respectively. These antennas mount with 3/8"x24 thread which will fit the standard Huster mounts. The CGT-144 and CGT-220 are supplied with a heavy duty trunk mount, 17' of coax and PL-259 connector.

5/8 Wave

Hustler manufactures two series of mobile antennas for 2m and 220 MHz and one for 440 MHz. The FX series comes with a heavy duty magnetic mount and the RX series has a standard duty mount. The antennas are base loaded with a 5/8 wave whip. The FX-2, FX-220, RX-2, RX-220 and RX-440 have black bases and chrome whips.

SF-2 / SF-220

These two antennas are for 2m and 220 MHz respectively. Each is a base-loaded 5/8 wave antenna. These antennas will mount to all the Hustler mounts.

UGM

A magnetic-mount antenna for the traveller. Trim it to operate as a 1/4 wave on 2m, 220 or 440. The mount is supplied with 7' of mini-coax and a BNC connector installed. Attaches directly to most handhelds. The antenna has a chrome base and stainless steel whip.

HF Resonators

There are two types of resonators for HF operation. The **standard** units are rated to 400 watts SSB while the **supers** are rated at 1 KW SSB. In addition to the power differences, the usable band width of the Super resonators is 100 percent wider on some bands. See the resonator table below for details.

Mounting HF Mobiles

The HF resonators described require some consideration when mounting.

Mount

A bumper (BM-1) or ball type (C32, SSM-1 or SSM-2) mount is required. Magnetic or trunk type mounts will not hold the weight or wind load.

Mast

All of the resonators must be mounted on top of one of the Hustler masts (MO-1, MO-2, MO-3 or MO-4). The MO-1 and MO-2 hinge to allow for travel or low clearances. The MO-1 is for deck or fender mounting and folds at 15" above the base. The MO-2 is for bumper mounting and folds at 27" above the base. The MO-3 is a fixed length mast for use where it will not be necessary to fold over the antenna.

Hustler has a new mast, the **MO-4** for installations requiring a short mast. The mast is just 22 inches tall. Use standard resonators and whips on 40 and 75m. Use standard resonators on 10, 15 and 20 meters with the new whips provided with the MO-4.

Hustler Resonators

Model	Type	Band	Power SSB	Bandwidth 2:1 SWR	Weight lbs	HRO Price
RM-10	Standard	10 m	400 W	150-250 KHz	0.41	$15.95
RM-11	Standard	11 m	400 W	150-250 KHz	0.41	$15.95
RM-12	Standard	12 m	400 W	90-120 KHz	0.41	$15.95
RM-15	Standard	15 m	400 W	100-150 KHz	0.42	$15.95
RM-17	Standard	17 m	400 W	120-150 KHz	0.44	$21.95
RM-20	Standard	20 m	400 W	80-100 KHz	0.46	$21.95
RM-30	Standard	30 m	400 W	50-60 KHz	0.84	$24.95
RM-40	Standard	40 m	400 W	40-50 KHz	0.84	$24.95
RM-75	Standard	75 m	400 W	25-30 KHz	1.05	$26.95
RM-80	Standard	80 m	400 W	25-30 KHz	1.05	$26.95
RM-10-S	Super	10 m	1 kW	250-400 KHz	1	$23.95
RM-15-S	Super	15 m	1 kW	150-200 KHz	1.2	$24.95
RM-20-S	Super	20 m	1 kW	100-150 KHz	1.25	$28.95
RM-40-S	Super	40 m	1 kW	50-80 KHz	1.8	$35.95
RM-75-S	Super	75 m	1 kW	50-60 KHz	2.1	$49.95
RM-80-S	Super	80 m	1 kW	50-60 KHz	2.1	$49.95

Mounting Accessories

Trunk Mounts

Three trunk mounts are available (HLM, HOT and TLM). All bases accommodate the 3/8"x24 thread and come with 17' of low-loss coax with connectors installed. The mounts are for use with VHF and UHF antennas. Do **NOT** use with the HF mobile antennas.

The **HLM** is specifically for hatch and slanted back vehicles. It has a built-in 180 degree adjustable swivel. The **HOT** is an easy on/off base–just spin the knob. The mount cannot be removed while the trunk is closed. It also features a 180-degree swivel. The **TLM** requires no holes to install. It mounts on flat, horizontal surfaces. The **RVM** is for recreational vehicles.

Bumper Mount

Use the **BM-1** bumper type mount with all Hustler mobile antennas including HF. It uses two "J" bolts and a stainless steel strap that will fit bumpers up to 18". It will not fit the molded, plastic bumpers found on some vehicles. The mount comes with a stainless steel ball. Use the L14-144 (12 foot) or L14-240 (20 foot) coax sets to attach directly to the bottom of the ball mount.

Other Accessories

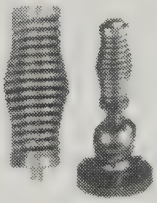
C-32	Chrome Plated Ball Mount	$11.95
SSM-1	Ball Mount and Spring	$46.95
SSM-2	Ball Mount	$26.95
SSM-3	Stainless Steel Spring	$24.95
RSS-2	Resonator Spring	$9.95
QD-2	Quick Disconnect	$19.95

Hustler Mounts

Model	Base Thread	Coax ft (m)	Swival	Weight lb	HRO Price
BM-1	3/8" x 24	optional	180°	2	$19.95
HOT	3/8" x 24	17 (5.1)	180°	1.9	$29.95
TLM	3/8" x 24	17 (5.1)		1.9	$20.95
HLM	3/8" x 24	17 (5.1)	180°	1.7	$22.95
RVM	3/8" x 24	17 (5.1)	180°	1.9	$20.95

Mobile Mounts

C-32



C-30 SSM-1

Hustler has a collection of mounts and accessories for attaching your antennas to your vehicle. The most common are described below.

C-32 Chrome-plated ball mount
C-30 Chrome-plated spring
C-29 Stainless steel spring

SSM-1 Professional ball mount and spring
SSM-2 Ball mount
SSM-3 Stainless steel spring

L-14-144 Coax lead 12', PL-259 & lugs for Hustler mounts
L-14-240 Coax lead 20', PL-259 & lugs for Hustler mounts

Valor pro·am™

VHF / UHF On Glass

Glassmaster™ Mobile Antennas

Pro-Am's on-glass antennas feature a rugged copper plated whip with black finish and an interior coupler box with adjustable slot to fine tune the SWR. Power rated at 50 watts, they come with 14' of RG58 coax, a PL-259 connector, and mounting package for easy, no hole installation. The dual-band model GM270 covers 2 meters and 440 MHz.

		HRO Price
GM144	144-148 MHz 2 m	$19.95
GM270	2 m / 70 cm Dual Band	29.95

VHF / UHF Dual-Band

Cover-It-All Dual-Band Antennas

Cover It All with a 19" stainless steel whip antenna. Its 1-1/8" threads match Pro-Am's mounts and 3/4" hole Motorola TAD/TAE mounts. The antenna covers 144-148 MHz and 435-450 MHz with less than 2:1 SWR. Handles up to 150 watts.

		HRO Price
MO144-440	2m / 70cm Dual Band	$16.95

Magnetic Cover-It-All Dual-Band Antennas

These 2 meter and 70 cm dual band antennas that Cover It All come with magnetic mount kits. The 19" stainless steel whip has a 3" magnetic mount and 12' of RG58 cable with BNC or PL259 connector. Black finish.

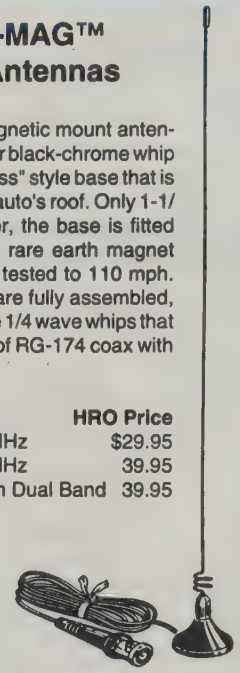
		HRO Price
PM144-440 BN	BNC Connector	$16.95
PM144-440	PL-259 Connector	$14.95

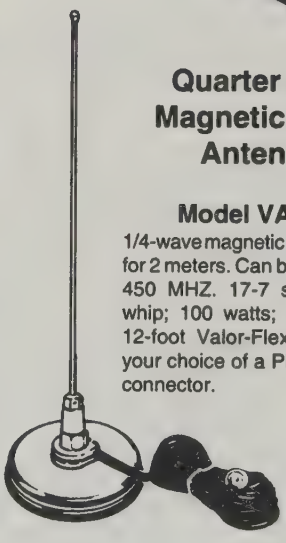
Mag Mount Antennas

MICRO-MAG™ Mobile Antennas

These ultra trim magnetic mount antennas feature a slender black-chrome whip and small "Candy Kiss" style base that is barely visible on an auto's roof. Only 1-1/8 inches in diameter, the base is fitted with a super strong rare earth magnet that has been wind tested to 110 mph. These Micro-Mags are fully assembled, pretuned, low-profile 1/4 wave whips that are supplied with 9' of RG-174 coax with a BNC connector.

		HRO Price
MM144B	144-148MHz	$29.95
MM450B	440-450MHz	39.95
MM270B	2m / 70cm Dual Band	39.95





Quarter Wave Magnetic Mount Antennas

Model VAA-002

1/4-wave magnetic mount antenna for 2 meters. Can be cut for 220 or 450 MHZ. 17-7 stainless steel whip; 100 watts; complete with 12-foot Valor-Flex™ cable and your choice of a PL-259 or BNC connector.

		HRO Price
VAA-002	PL-259 Connector	$23.95
VAA-002 BNC	BNC Connector	$27.95

HF Mobile Antennas

HF Mobile Antennas PHF Series

If you're ready to experience home station performance and great HF DXing on the open road, then gear up with Pro-Am's monoband PHF series mobile antennas and enjoy top results all the way.

Pro-Am's monoband PHF series consists of a black fiberglass lower section with integral coil and an adjustable (and removable) stainless steel whip (except for the PHF160). They are rated at 250 watts PEP and built to withstand considerable use. Standard 3/8x24 threads. Total assembled length on all models 96" (except PHF6 at 58").

Model	Band (meters)	Band Width (kHz)	HRO Price
PHF160	160	12	$79.95
PHF75	75	36	$21.95
PHF40	40	60	$19.95
PHF30	30	100	$17.95
PHF20	20	150	$19.95
PHF17	17	175	$19.95
PHF15	15	200	$19.95
PHF12	12	300	$19.95
PHF10	10	500	$19.95
PHF6	6	1000	$17.95

Five-Band HF Mobile Antenna

Model AB5

Pro-Am's heavy-duty HF mobile slim-line antenna covers 75 m, 40 m, 20 m, 15 m, and 10 m amateur bands. Heavy-gauge copper wire wound on 3/8" fiberglass, with nickel-chrome brass fittings and 17-7 taper ground stainless steel whips assure dependable operation. The 4' whip is field tunable for lowest VSWR and double locked with stainless steel set screws. The 3/8-24 ferrule fits standard mobile mounts. Power rated at 250 watts P.E.P. Approximate 8' length. **HRO Price $109.95**

VHF / UHF Mobile Antennas

Premium Series

When You Want the Best

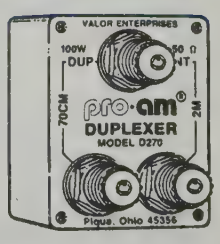
Model	Frequency	Gain	Lgth	Max Power	HRO Price
PR2000	142-148 MHz	3.2 dBd	48.5"	75 W	$34.95
PR2000C	142-148 MHz	5 dBd	77.5"	150 W	$44.95
PR2070	140-150 MHz 440-450 MHz	0 dBd 3.2 dBd	17.5"	150 W 100 W	$35.95

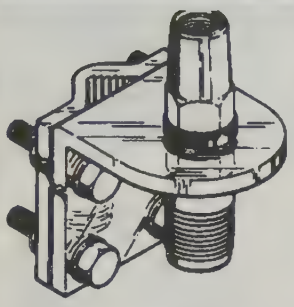
Valor has a series of monoband and dual band professional quality antennas for the ham operator. All models have gold plated center connectors, UHF male connector, and PTFE (TEFLON) insulator.

Duplexer

Model D270

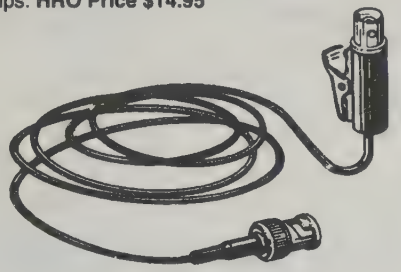
Duplexer for two band antennas. Provides cross-band operation with a 2m / 70cm antenna. Power rated up to 100 watts with 50 Ohm impedance. **HRO Price $27.95**





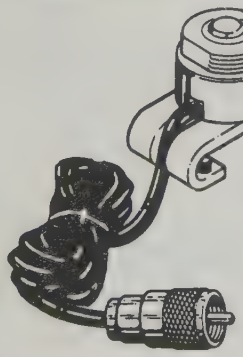
Stainless Mount
Model SSI00AD

Three-way mount installs horizontally, vertically, or flush. Heavy-duty 3/8 S0-239 connector. All stainless steel hardware and chromeplated brass hex. Fits all standard 3/8-24 antennas up to 48". For plug to plug hookups. **HRO Price $14.95**



Hat Clip
Model BNC-HC

BNC Hat Clip with 4' of cable and a BNC connector. **HRO Price $14.95**



Trunk Lip Mounting Kit
Model PAT2

This low profile, no-hole trunk mount features the Mototola Style 1-1/8"-18 thread for amateurs who demand the very best and professional quality. **HRO Price $27.95**

Mirror Mount
Model SS100MOT

Stainless steel 3-way mirror mount with a Motorola style mounting. Includes 10' of cable with a PL-259 connector. **HRO Price $19.95**

Magnetic Mount
Model PAM

A series of low profile magnetic mounts for antennas with Motorola TAD and TAE 1-1/8"x18 threads.

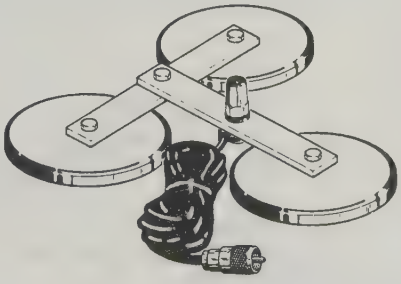
PAM is 3-3/4" with 12' RG58 to PL-259. **HRO Price $19.95**

PAM2 is 3-1/4" diameter. **HRO Price $19.95**

PAM4 is a 5" diameter mount with 17' of RG58 to a PL-259 connector. **HRO Price $24.95**

Magnetic Mount
Model 401BSO

5" diameter magnetic mount with SO-239 on top. Pre-wired with 12' RG58 to PL-259 connector. Black. **HRO Price $29.95**



Maxi-Magnet Mount
Model MM3401

Maxi-Magnet mount kit has three 5" (401) magnets properly spaced on a heavy duty aluminum frame. The MM3401 is pre-wired to Valor's patented wafer termination with 12' of RG58 coax and PL-259 connector. Accepts standard 3/8x24 antennas. **HRO Price $39.95**

Connector

SO-239 Connector
Model 105AD

Mount Assembly: Heavy duty 3/8 SO-239 Connector, nickle plated. No chance of rust or corrosion. The brass hex is chrome plated. For plug-to-plug connections. **HRO Price $5.99**

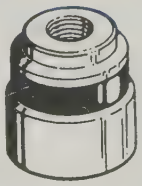
Window Mount
Model WMSLBNC

Slim Line window mount kit with BNC connectors and 7' RG188 cable. Easily mounted to any vehicle window. Features black finish window mount, BNC connectors, and high tech design. Ideal for handheld radios for amateur, CB, scanner and commercial users who need extra performance. **HRO Price $34.95**

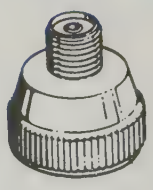
Window Mount
Model MOWM

Popular window mount kit with Motorola style fittings. 6' RG58 cable, PL-259 connector. **HRO Price $18.95**

Adapters



NMO to 3/8x24 Adapter
Model PAN38



NMO to SO239 Adapter
Model PANSO

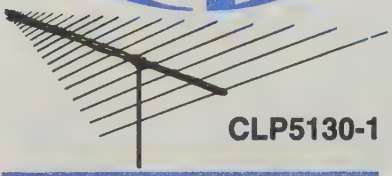
Need a different mount for your mobile antenna? Use one of these adapters to convert from the mount you have to the one you need.

The **PAN38** converts an NMO to a 3/8x24 mount. **HRO Price $14.95**

The **PANSO** converts an NMO to an SO239. **HRO Price $14.95**

MORE ANTENNAS

CREATE



CLP5130-1

Log Periodic Antennas

The **CLP5130** antennas are high gain, wide band VHF/UHF log periodic beams for horizontally polarized base station use. Use for amateur bands from 50–1300 MHz and FM broadcasting, scanning, VHF / UHF TV, air band communications, government application, and business bands.

The forward gain is 10 to 12 dB—10 to 16 times the gain of a nondirectional discone type antenna. The VSWR is less than 2.0:1 across the band.

The high-quality aluminum antennas have a boom design that allows movement of the phasing line. Distortions in the vertical and horizontal planes are minimized and element adjustment is not necessary. The boom-to-mast bracket is made of a lightweight and rugged magnesium alloy.

	CLP5130-1	CLP5130-2
Frequency	50-1300 MHz	108-1300 MHz
No. Elements	23	19
Power	500W PEP	500W PEP
Forward Gain	10-12 dBi	10-12 dBi
Front/Back	15 db	15 db
Longest eleme	9' 10"	4' 6"
Boom length	5' 9"	4' 6"
List Price	$449.95	$299.95

DIAMOND ANTENNA

D-130J Super Wideband Discone

Monitor 25-1300 MHz. Transmit on 50, 144, 430, 1200 MHz. All stainless steel. Input power 200 watts. Impedance: 50 ohms. VSWR: 1.5:1. Length: 1.7 meters. Mounts on 1" to 2" masts. **HRO Price $99.95**

Swiech
Communications Systems

Beams for 2 Meters and 1.2 GHz

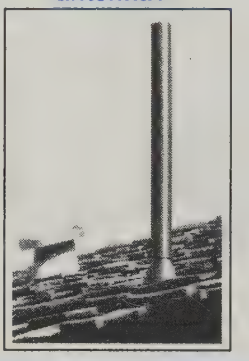
The **COY2M3EL** is a black anodized, light weight 3 element beam antenna for 2 meters. It provides a 6.1 dB forward gain and an H-plane beam-width of 80 degrees. The bandwidth is 144-148 MHz with an SWR <1.7 at the band edges. Impedance is 50 ohms and it handles 200 watts. A great antenna for packet, public service, camping, T-hunting, Field Day or any portable operation.

	HRO Price
COY2M3EL	**$64.95**
COY2M4EL	**$74.95**
COY1.2 Beam	**$109.95**

The Forbes Group

Ventenna™

Can you spot the antenna?

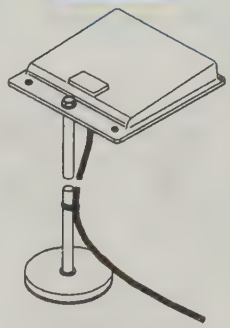


Neither can your neighbors

At last a solution to antenna restrictions. The Ventenna™ quickly slips over your existing vent pipe and your signal really gets out! It is nearly invisible and is one of the most rugged antennas made. The **VT-27** dual-band is for 2 meters and 440 MHz. Single band models are for 2 meters, 220 MHz and 440 MHz.

Model	Description	HRO Price
VT-14	2 meters	**$49.95**
VT-22	220 MHz	**$49.95**
VT-44	440 MHz	**$49.95**
VT-27	2 meter & 440 MHz	**$74.95**

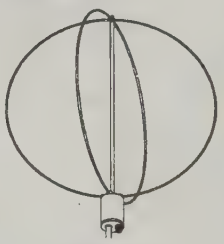
M²



2m SQLOOP

Shown with Optional Mast and Magnet Mount

The 2 meter omnidirectional, horizontally-polarized SQLOOP is for mobile or base use. It is a flat 8" square, reduced size loop, cut out of one piece of aluminum to minimize loss. The basic 2 ohm impedance of the loop is efficiently balance fed with an inductive, magnetically shielded coupling loop.

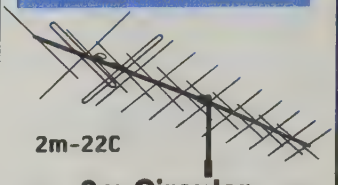


EB-144 2M Eggbeater

The Eggbeater offers exciting new performance characteristics for fixed and mobile operations. The EB-144 produces smooth omnidirectional horizontal polarity at the horizon. Above the horizon, the pattern transforms to right hand circular off the top making it a natural for OSCAR use. No rotation or steering is required.

KLM

Oscar



2m Circular

Circular polarized models for 2m: **2M-14C** and **2M-22C**. Excellent for Oscar. Circular polarity switch included with each antenna.

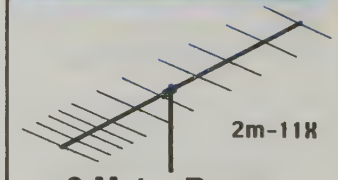
440 MHz Circular

Circular polarized models for 440 MHz: **435-18C** and **435-40CX**. Excellent for Oscar. Circular polarity switch included with each antenna.

Fiberglass Masts

To provide proper horizontal boom insulation for OSCAR operation, KLM has two fiberglass masts: one 5 feet; the other 7.5 feet. Care should be taken in selecting the elevation rotator. The masts are too large for the Alliance U110 which is sometimes used. The masts will work with the Yaesu rotators.

VHF / UHF Beams



2-Meter Beams

Models 2M-16LBXM, 2M-11, 2M-4X.

440 MHz Beams

Models 432-16BA, 432-30LBX, 440-14, & 440-6.

MAXRAD

These quality VHF / UHF antennas are available. Please call for models, specifications, & quotes.

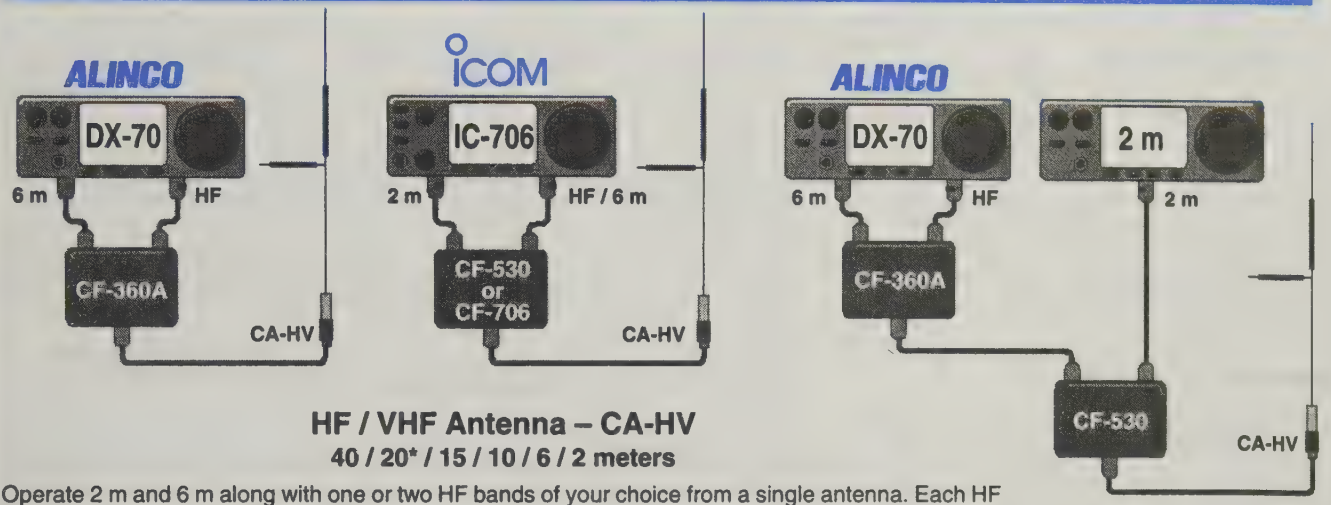
Phone Orders West 1-800-854-6046 • Mountain / Central 1-800-444-9476 • Southeast 1-800-444-7927

COMET

HF / VHF ANTENNAS

Antennas specifically designed for use with the Icom IC-706 and the Alinco DX-70

Keep It Simple With a Single HF / VHF Antenna



HF / VHF Antenna – CA-HV

40 / 20* / 15 / 10 / 6 / 2 meters

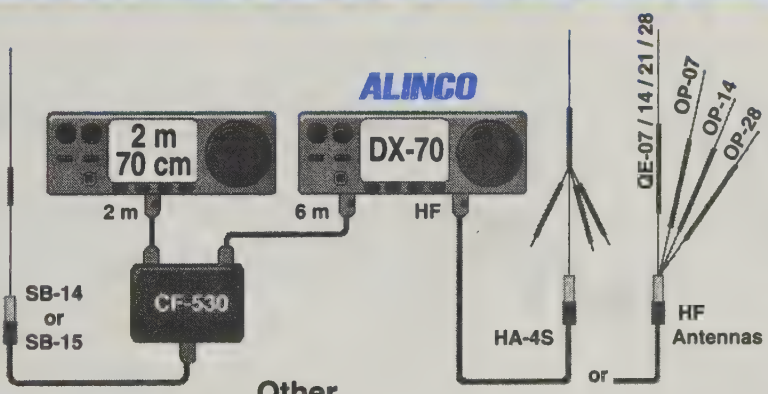
Operate 2 m and 6 m along with one or two HF bands of your choice from a single antenna. Each HF coil tunes independently. This 61" tall antenna has a convenient fold-over feature to allow easy entry into parking structures, drive-throughs, etc. A wide variety of mounting options are available: hole, hatchback, pipe clamp, trunk lip, or rain gutter. See the chart on page 97. * L-14 optional 14 MHz coil

Combine Separate VHF and HF Antennas With Comet Duplexers

VHF Antennas SB-15 / SB-14

6 m / 2 m / 440 MHz

These triband antennas can be used as dual banders. Both are 61" tall with fold-over capabilities and easy mounting options. See the chart on page 97.

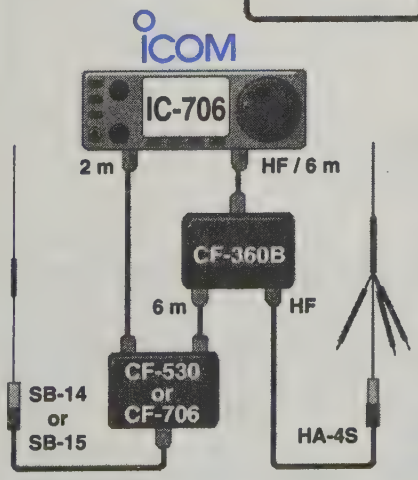


HF Antenna HA-4S

40 / 20* / 15 / 12 / 10 meters

Operate any 4 of the 5 available HF coils at a time. Each coil tunes independently. Tune from band to band without the need to change coils, plugs, whips, etc. The antenna has a convenient fold-over feature. A wide variety of mounting options are available. See the chart on page 97.

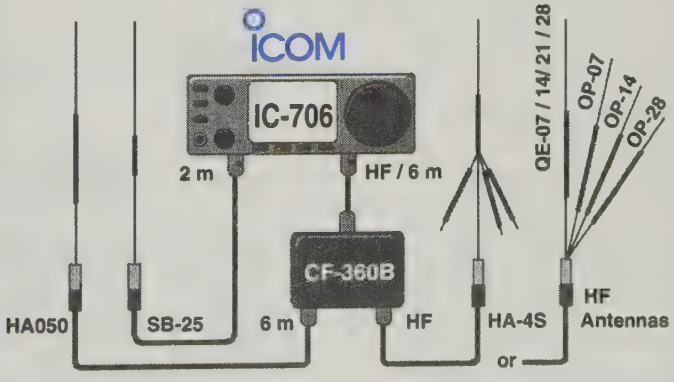
* L-14 optional 14 MHz coil



Other Options

Separate 2 m and 6 m antennas can be used along with the HA-4S avoiding a duplexer. HRO has a complete line of Comet single band HF antennas for 80 m, 40 m, 20 m, 15 m and 10 m. All approximately 40" to 45" in height. QE antennas use optional whips.

Call HRO for more information and our discount prices.

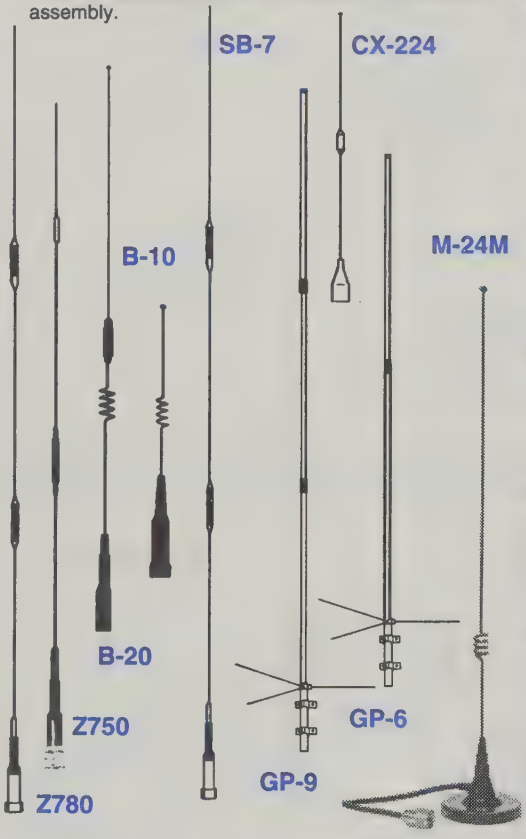


COMET

Dual- & Tri-band VHF / UHF

Comet developed the Super Linear Converter (SLC) to increase actual gain of dual and triband antennas.

- A complete pre-formed phasing coil and phosphorus copper element eliminates additional components and gain loss.
- The SLC is electrically very efficient, providing a low angle of radiation, directly to the horizon.
- Comet sectional antennas use ABS (Transparent to RF) connecting joints for the finest pattern and easiest assembly.



Dual-Band Mag Mount Antenna

Economical black anodized 2m / 440 MHz antenna is 19.5" tall and comes with 13 feet of RG-58/U coax and either a gold-plated PL-259 (**Model M-24M**) or BNC connector (**Model M-24B**) soldered on.

Gain: 146 MHz 1.7 dBi 3/8 wave
446 MHz 4.1 dBi 1/4 + 5/8 wave
Max Power: 80 Watts
VSWR: 1.5:1 or less
Impedance: 50 Ohm
HRO Price $39.95

NEW!

Flexible Dual-Band

Convenient, very flexible 2m / 70 cm 17" antenna. Comes with either a gold-plated PL-259 (**Model SBB-1**) or NMO connector (**Model SBB-1NMO**).

Gain: 146 MHz 1.5 dBi 1/4 wave
446 MHz 2.15 dBi 1/2 wave
Max Power: 60 Watts
VSWR: 1.5:1 or less
HRO Price $39.95

NEW!

Comet Dual-Band Antennas

MODEL	BANDS	GAIN	MAX PWR Watts	CONN	WGT Lbs' oz"	LEN FT' In"	MAX WIND SPEED MPH	HRO Price
Dual Band Base Station Repeater Antennas								
GPX-2010	2m/70cm	9.5/13.2	200	SO-239	7'14"	23'4"	65 w/o guys 90 w/guys	$379.95
GP-9/GP-9N	2m/70cm	8.5/11.9	200	SO/N	5'11"	17'8"	90	$209.95
GP-6	2m/70cm	6.5/9.0	200	SO-239	3'8"	10'5"	90	$149.95
GP-3	2m/70cm	4.5/7.2	200	SO-239	2'12"	5'11"	112	$99.95
CA-1243Z	70cm/23cm	9.4/12.8	150/50	N-Female	3'8"	7'5"	90	$149.95
CA-1243E	70cm/23cm	6.0/8.4	150/50	N-Female	1'13"	3'4"	112	$94.95
Dual Band Mobile Antennas - All Black Anodized								
SBB-7/SBB-7NMO	2m/70cm	4.5/7.0	70	PL/NMO	–	4'7"	–	$89.95
SBB-5/SBB-5NMO	2m/70cm	3.0/5.5	120	PL/NMO	–	3'2"	–	$62.95
SBB-2/SBB-2NMO	2m/70cm	2.15/3.8	100	PL/NMO	–	20"	–	$39.95
B-10	2m/70cm	–/2.15	50	PL-259	–	12"	–	$39.95
B10NMO								$39.95
B-20	2m/70cm	2.15/5.0	50	PL-259	–	30"	–	$56.95
B20NMO								$56.95
SB-214W	2m/220MHz	1.7/3.4	100	PL-259	–	2'11"	–	$62.95
CHL-350	10m/6m	–/2.15	200	PL-259	–	7'0"	–	$79.95
NEW Z Series With Theft-Resistant Lock								
Z750	2m/70cm	2.15/5.5	200	PL-259	–	3'3"	–	$62.95
Z780	2m/70cm	4.5/7.2	150	PL-259	–	5'2"	–	$82.95

Comet Tri-Band Antennas

MODEL	BANDS	GAIN	MAX PWR Watts	CONN	WGT Lbs' oz"	LEN FT' In"	MAX WIND SPEED MPH	HRO Price
TrBand Base Station Repeater Antennas								
GP-15	6m/2m/70cm	3/6.2/8.6	200	SO-239	2'15"	7'11"	90	$159.95
GP-93	2m/70cm/23cm	4.5/7.2/10	200	N-Female	2'8"	5'7"	112	$139.95
GP-98	2m/70cm/23cm	6.5/9.0/13.5	100	N-Female	3'6"	9'4"	90+	$209.95
CX-333	2m/220/70cm	6.5/7 8/9.0	120	SO-239	3'10"	10'2"	112	$189.95
TriBand Mobile Antennas								
SB-15	6m/2m/70cm	2.15/4.5/7.2	120	PL-259	–	4'10"	–	$99.95
SB-97	2m/70cm/23cm	3.0/6.8/9.6	100	N-Male	–	3'3"	–	$89.95
CX-224	2m/220/70cm	2.15/3.2/5.5	150	PL-259	–	3'1"	–	$79.95
CX-224NMO	2m/220/70cm	2.15/3.2/5.5	150	NMO	–	3'1"	–	$79.95
CA-HV	40/(20)/15/10/6 /2m	HF 0 dBi 2m 3.4 dBi	120 SSB HF 100W FM 6/2m	PL-259	MAX 1'3"	MAX 6'3"	–	$134.95
L-14	Opt 20M coil for CA-HV						–	$36.95
HA-4S	40/(20)/15/10m	0 dBi	120 SSB 7-24MHz 200W SSB 14MHz	PL-259 /NMO		4'4"	–	$179.95
L-14HS	Opt 20M coil for HA-4S						–	$39.95

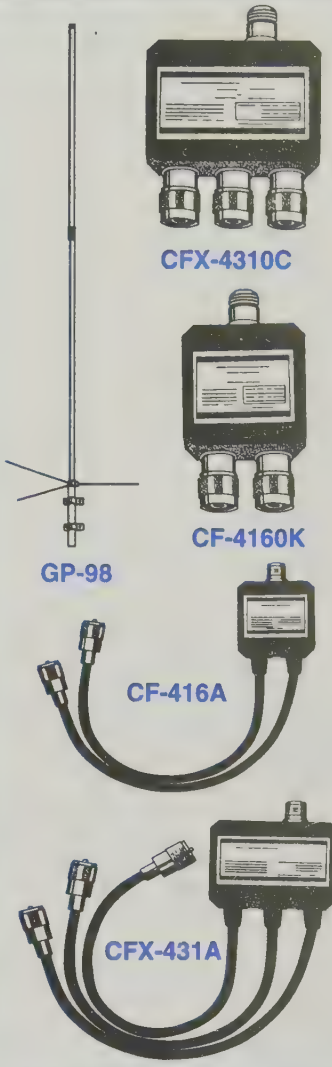
Comet Single Band and HT Antennas

MODEL	BANDS	GAIN	MAX PWR Watts	CONN	LEN FT'In"	HRO Price
Single Band Antennas						
SBB-25/SBB-25NMO	2m	4.1	100	PL-259/NMO	4'8"	CALL
SB-44	70cm	5.5	130	PL-259	37"	$44.95
HT Antennas						
CH-32 MINI Ant	2m/70cm	–	10	BNC	1.75"	$33.95
SMA-501 MINI Ant	146/446 MHz	–	10	SMA	1.5"	$29.95
SMA-3	2m/70/23cm	1.2/1.7/3.4		SMA	9.75"	$41.95
CH-72S	2m/70cm	–/3.2	50	BNC	15"	$29.95
SH-95	2m/70/23cm	1.5/2/5.5	10	BNC	15"	$49.95

Comet High-Power Duplexers and Triplexers

Zinc-alloy, die-cast, twin cavity, low input loss, high-isolation, and high-power. Modernize your station with Comet high-performance antenna products.

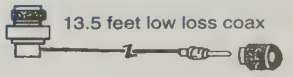
MODEL	PORT	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol dB	Mix Conn	Port Conn	HRO Price
CF-416A (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	SO-239	PL-259 w/leads PL-259 w/leads	$54.95
CF-416C (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	N-Female	PL-259 w/leads N-Male w/leads	$54.95
CF-4160I (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads N-Male w/o leads	$52.95
CF-4160K (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads PL-259 w/o leads	$52.95
CF-413B (70cm/1.2GHz)	LPF HPF	1.3-150MHz 350-500MHz 840-1.4GHz	450 300 100	800 500 200	0.25 0.25 0.4	55 55 55	N-Female	PL-259 w/leads N-Male w/leads	$74.95
CF-530 (6M/125-470)	LPF HPF	1.3-90MHz 125-470MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	$74.95
CF-360A (10m/6m)	LPF HPF	1.3-30MHz 50-470MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	$69.95
CF-142 (2m/220MHz)	LPF HPF	1.3-1150MHz 200-480MHz	300 200	600 400	0.2 0.3	40 50	SO-239	PL-259 w/leads PL-259 w/leads	$79.95
CF-706 (2m/6m)	LPF HPF	1.3-56 MHz 75-320 MHz	350 350	600 600	0.4 0.4	40 40	SO-239	PL-259 w/cable PL 259 w/cable	$74.95
CFX-431A (2m/70cm/1.2)	LPF BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1KW 800 500 200	0.2 0.2 0.3 0.4	50 50 50 50	N-Female	PL-259 w/leads N-Male w/leads N-Male w/leads	$89.95
CFX-4310B (2m/70cm/1.2)	LPF BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1KW 800 500 200	0.15 0.25 0.25 0.3	50 50 50 50	N-Female	PL-259 w/leads N-Male w/leads N-Male w/leads	$84.95
CFX-4310C (2m/70cm/1.2)	LPF BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1KW 800 500 200	0.15 0.25 0.25 0.3	50 50 50 50	N-Female	PL-259 w/leads N-Male w/leads N-Male w/leads	$84.95
CFX-514 (6m/2m/70cm)	LPF BPF HPF	1.3-90MHz 130-200MHz 380-500MHz	450 450 300	800 800 500	0.2 0.25 0.3	55 55 55	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	$84.95
CFX-514J (6m/2m/70cm)	LPF BPF HPF	1.3-90MHz 130-200MHz 380-500MHz	450 450 300	800 800 500	0.15 0.2 0.25	55 55 55	SO-239	SO-239 w/o leads SO-239 w/o leads SO-239 w/o leads	$79.95
CFX-324A (2m/220/70cm)	LPF BPF HPF	1.3-150MHz 200-320MHz 390-500MHz	350 350 350	600 600 600	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	$88.95
CFX-324B (2m/220/70cm)	LPF BPF HPF	1.3-150MHz 200-320MHz 390-500MHz	350 350 350	600 600 600	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/o leads PL-259 w/o leads PL-259 w/o leads	$85.95



Comet Mobile Mounting Systems

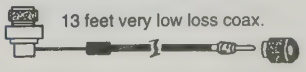
Comet has a wide variety of mobile moounts. Choose the mount and coax cable assembly that best fits your personal needs. All Comet cables have detachable connectors.

MODEL	DESCRIPTION	HRO Price
3D4M	Standard coax assy. 13ft low loss (3.5mm) coax w/UHF Connectors	$24.95
3D4N	-Ditto- But with N-Type Connectors	$28.95
CK-3M5	17ft high quality cable inc 12" RG-188 to avoid water leak/cable damage. UHF Conn.	$39.95
CK-5N	-Ditto- But with N-Type Connectors	$47.95
5D4N	13ft VERY low loss (5mm) cable assy. For 1.2GHz. N-Type Connectors	$34.95
	The following Mounts are w/o Coax. Choose from the Cable Assembly Above.	
RS-500	Heavy Duty Gutter Mount	$29.95
RS-520	Small/Heavy Duty Trunk/Hatch Mount	$29.95
RS-21	Multi-Purpose Mount, Trunk-Lip/Hatch-Back, Black, Adj to any position	$34.95
RS-9	Trunk-Lip Mount, Black. For small antennas. (B-10, B-20, CHL-23J, etc)	$14.95
CM-5M	Standard Hvy-Duty Mag Mt w/RG-58A/U, Coax, UHF Conn, Max Antenna Height 4ft	$39.95
MS-5LXNN	-Ditto- But with N-Type Connectors	$61.95
GR-5M	Deluxe trunk-lip mount w/CK-3M5 Cable, UHF connectors	$67.95
GR-5N	Deluxe trunk-lip mount w/CK-5N Cable, N-Type connectors	$69.95



3D4M(N) Detachable Connector

RG-188 provides easy entry into the vehicle from an exterior mount.



10 inches RG-188 CK-3M5/CK-5N Detachable Connector

Free UPS Brown Shipping on Most Orders Over $100.

Outbacker

The Ultimate All-Band HF Mobile Antennas

Perth & Perth Plus Antennas

The Perth covers 10-80 meters and the Perth Plus adds to that the 6 m and 2m bands. Both are sleek 3-1/2 foot stingers with a 4 foot main shaft where the taps are located. They have a tough, yet flexible fiberglass core, helically wound with copper wire hand tuned to the various "tap" frequency points. Both offer high performance with low wind drag. Mount them easily on a trunk lip, hatch, or bumper with a standard 3/8 X 24 stud. The stinger retracts into the main shaft for easy stowage. With a proper ground plane, Perth antennas are also suitable for apartment and condo installations.

Outbacker Antenna

With the Outbacker™ there is no need to change coils when changing HF bands. The antenna comes in a six foot version that handles up to 300 watts PEP and a four foot Junior model for up to 150 watts PEP.

The antennas are made of fiberglass coated with smooth epoxy resin and polyurethane to provide strength, protection and durability. The pre-tuned copper helical winding has connection sockets constructed of rust-free brass and clearly marked for each band. The antenna covers all bands from 10 to 80 meters.

Mount the antenna with a standard 3/8 X 24 thread. Use Hustlers BM-1 or SSM ball mounts. An optional heavy duty spring and 2 inch base can be mounted at the bottom of the antenna and attached to a PL-259 connector.

NEW!

Outreach Antenna

- An efficient portable antenna system for those needing limited-space, deed-restricted, backyard, patio, or field-day installations.
- All bands–160 - 10 meters–including WARC.
- Only 12 ft. tall!
- Exceptional performance: 10, 12, and 15 meters are 5/8 wave; all bands are center loaded for peak performance. Compare to ANY whip you have used–you'll be AMAZED!
- Handles 150 watts P.E.P.
- Split 8 foot shaft and 4 foot stinger–antenna breaks down to 4 feet for easy portability.
- Terminates in standard 3/8 x 24 base.
- Uses Outbacker's® proven band tap system.

Alpha Delta Outpost™ Tripod / Ground Coupler Ground Mount System

- Designed to match the base impedance of all Outbacker® antennas.
- Fold-over 3/8 x 24 SO-239 top mount so antenna will be out of view when not in use.
- Constructed of aircraft 6061-T6 aluminum, stainless steel hardware and wing nuts — NO TOOLS REQUIRED.
- No digging–no holes in ground–no concrete.
- Fold-out legs act as a large capacitor providing proper coupling to the ground and proper base impedance to the antenna.
- Fold-up design for 10-minute installation.

MOBILE MARK, INC. COMMUNICATIONS ANTENNAS

HF Mobile Heliwhips & Kilowhips

The Heliwhip and Kilowhip Series are fiberglass-molded continuously-wound antennas for 10, 15, 20, 40 and 80 meters. Kilowhips are high powered versions of the Heliwhips. Power handling is 100 W for the Heliwhip and 1 kilowatt for the Kilo-whip.

Mobile Mark Whips

Model	Center MHz	Bandwidth KHz	HRO Price
HW-80	3.8	50	32.95
HW-40	7.25	100	32.95
HW-20	14.2	250	32.95
HW-15	21.2	500	29.95
HW-10	29	1000	29.95
HW-6	52	2000	29.95
KW-10	28.6	800	49.95
KW-15	21.3	400	49.95
KW-20	14.2	250	49.95
KW-40	7.22	60	49.95

2m / 70 cm Dual-Band Antennas

There are more dual-band antennas on the following pages:

DIAMOND ANTENNA See Page 106 · PREMIER communications See Page 39 · COMET See Page 100 · pro·am See Page 96

Brand	Model	Type	Frequency MHz	Gain	Weight oz.	HRO Price
Icom	AH-32	2m	144-148	2.7 dB	8.8	$66.95
		70cm 5/8 collinear	440-450	5.5 dB		
Kenwood	MA-700	2m 1/2 whip	144-148	3.0 dB	7	$99.95
		70cm 5/8 stacked	440-450	5.5 dB		
Larsen	NMO 2/70	2m	144-148	2.6 dB	3.9	$53.95
		70cm 5/8 collinear	440-450	5.5 dB		
Austin	500C	2 m	144 -148	Unity	6	$32.95
		70 cm	440 - 450			
	Metropolitan	2 m	144 -148			$39.95
		220 MHz	220 - 225	Unity	6	
		70 cm	440 -450			
Valor	GM270	2m	144 -148	2.6 dB	–	$29.95
		70 cm	440 - 450	4.0 dB		
	MM270B	2m	144 -148	–	–	$39.95
		70 cm	440 - 450	–		
	PM144-440	2m	144 -148	–	–	$14.95
		70 cm	440 - 450	–		
	MO144-440	2m	144 -148	Unity	–	$16.95
		70 cm	435 - 450	2. dB		

Maldol

Maldol produces high performance antennas for HF, VHF and UHF applications. There are antennas for the handheld, mobile operation and the base station. A complete line of mounts are available as well as roof mount towers. Contact your HRO representative for a description and price of your chosen Maldol antenna. Several are described here.

Handheld Antennas

Model	Freq MHz	Lgth In.	Sugg. List
HS-2RB	146	4.4	$19.95
HS-70RB	440	4.4	$19.95
AH-209S	146/440	3	$19.95
HS-702S	146/440	17.6	$19.95
AH-210R	146/440	Telesc	$49.95

Base Station Series

Model	Freq	Lgth Ft.	Pwr Watts	Sugg. List
HS-WX-1	4.5/7.2	6	200	$99.95
HS-WX2	6.0/8.0	9	200	$149.95
HS-WX5B	8.4/11.8	23	250	$269.95

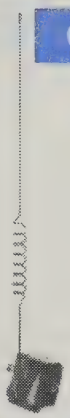
ARTseries

The Art Series are 2m / 70 cm dual band high performance mobile whip antennas. These use the "V-Match" system to ensure full power radiation. A 24K plate center pin reduces loss. The pop-out adapter lets the antenna tilt to avoid damage in low height situations.

Dual-Band Mobiles

Model	Gain dB	Lgth In.	Pwr Watts	Sugg. List
ARD-5B	-/3.8	19.6	120	$59.95
ARD-6	2.6/4.9	26.8	100	$70.95
ARD-10B	3.0/5.5	34.8	120	$74.95
ARD-18B	5.0/7.7	65.6	150	$99.95

On-Glass Antennas



antenna specialists

AP-143

This unique on-glass styling with a coil looks like a cellular antenna. Broad banded. No tuning necessary. The length of the whip is only 26 inches. Black coating on the antenna is very attractive. No ground plane required.

MOBILE MARK, INC. COMMUNICATIONS ANTENNAS

On Window Dual Band

This On Window dual band antenna can operate anywhere within the 140-174 and 440-470 MHz bands. Tune UHF or VHF without affecting the tuning of the other band. It provides unity gain. **HRO Price $89.95**

Specifications

Frequency	140-174 MHz and 440-470 MHz
Maximum Power	150 Watts
Bandwidth	10 MHz VHF 20 MHz UHF
Radiator Length	24 inches (61 cm)
Cable	RG58U, 15.5 feet

Larsen

Larsen's full selection of on-glass antennas for single-band and dual band use are described on page 105. All single band antennas are precut, single 1/2 wave design providing 2.4 dB gain.

Single Band 1/2-Wave

Model	Description	HRO Price
KG-144-PL	2 meter antenna	$58.85
KG-220-PL	220 MHz antenna	$58.85
KG-440-PL	440 MHz antenna	$49.15

Rubber Duckies

Larsen

HQ (VHF) | HELICAL (VHF, UHF) | DUAL BAND | HW (VHF) | HW (UHF)

Larsen's line of KulDuckie durable portable antennas are backed with their 3-Year No-Nonsense Warranty. **Call for HRO prices.**

KulDuckies have outstanding transmit range with 1.5:1 VSWR. Made of copper and brass radiators, they are scope tuned to precise frequencies. Constructed with soldered connections, plastisol dip process, injection molded housings, and silver-plated contacts.

Helical

Helical antennas are approximately 8" in length for VHF and 3" for UHF.

HQ Helical

The HQ helical quarter wave antenna offers a higher gain than the regular helical. For VHF only. Length 9-1/2".

HW Half Wave

The 1/2-wave allows operation independently of a ground plane. Coils cannot flex and change frequency. HWs have a rigid impedance transformer at the base and a chrome-plated telescoping, black whip with a BNC connector. UHF model length 16-1/2"; VHF model is 11" collapsed and 44-1/2" fully extended.

Dual Band

Two models cover 2m and 70 cm. Approximate length 8". Model KD3-2/70 has a TNC male connector; Model KD4-2/70 has a BNC male connector.

Duplexers

When using a single antenna with mobile radios that have separate 2 meter and 440 MHz outputs, you must use a duplexer.

Larsen's AD-2/70 duplexer provides a bi-directional passive coupler. VHF/UHF isolation is more than 50 dB. Handles 200 watts. **HRO Price $63.70**

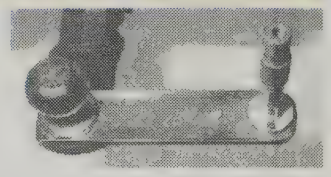
Yaesu's AD-3 handles up to 50 W. Its short cables attach to VHF radios with an SO-239 and to UHF with a type N connector. VHF to UHF isolation is 50 dB. **HRO Price $52.95**

Comet Antenna produces a wide variety of duplexers / triplexers. Features include gold-plated connectors, high isolation and the highest power handling abilities. See page 101.

Diamond has a wide collection of duplexers and triplexers for coupling antennas and transceivers. See page 107.

Antenna Mount

Tenna Hitch



Where can you mount your antenna on a car with no bumpers? Where can you mount your HF antennas without punching holes? Do you want to pull a trailer and ham at the same time? **Here is the solution.** The Tenna Hitch mounts under the ball of your trailer hitch so you can use your regular antenna for HF operation while still pulling a trailer. Tenna Hitch supports all current HF mobile antennas. It comes with all the hardware necessary for mounting on a trailer hitch. **HRO Price $32.95**

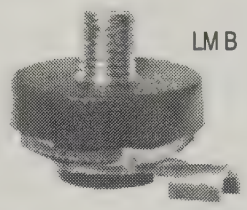
Larsen

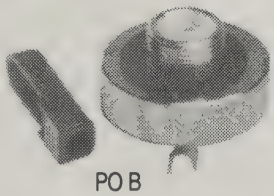
Choosing Your Larsen Mobile Antenna

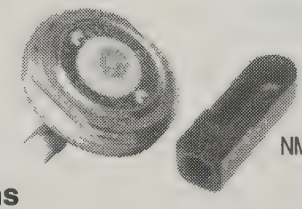
Choose your antenna configuration based on the frequency, base type (e.g., magnetic mount) and thread type (e.g., NMO). Keep in mind that it is necessary to select a base with the same mounting style as the antenna. Typical bases and styles are shown below.

Thread Types

These are examples of each of the thread types. Select one and then select the base.

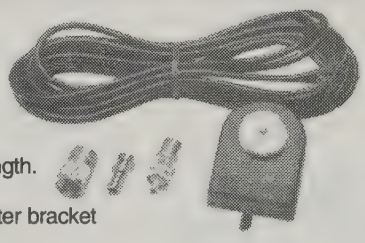

LM B


PO B

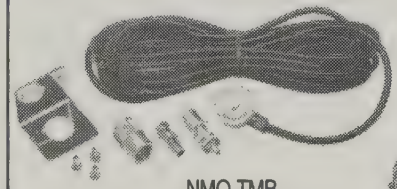

NMO B

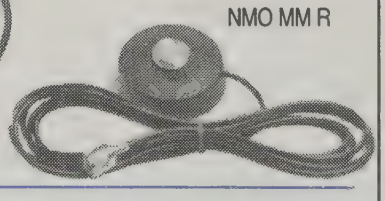
Mount Configurations

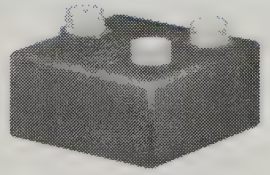
In addition to the popular Motorola 3/4" (NMO) mounts shown here, mobile antennas for the Larsen mount (LM) and PO mount (PO) are excellent choices for amateur use. Each of these mounts comes in one of the thread types.


NMO TLP

Mounts:
NMO K premium quality rooftop.
NMO MM mag mount, 90# pull strength.
NMO TLP heavy duty trunk lid.
NMO TMB electropolished trunk gutter bracket


NMO TMB

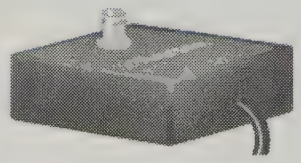

NMO MM R



Duplexer

AD 2 / 70 VHF / UHF Duplexer

Useable Bandwidth: . VHF 120-230 MHz
..... UHF 320-500 MHz
Crossover Frequency: ..... 283 MHz
Suppression: .... VHF @ 450 MHz 50 dB
..... UHF @ 150 MHz 60 dB
Impedance: .... 50 Ohm nominal all ports
Power: ..... 100 Watts
Insertion Loss: ..... 0.3 dB
Connectors: ..... SO-239 all ports



Magnetic Mount

BNC MM BNC

Connectors: BNC on the mag and coax. Coax: RG 58 A/U, 12'

Rubber Ducks
On Page 103

NMO Series Antennas

Once the base and thread type are selected, the final step is to choose the antenna. Gain antennas are made of a coil and a whip. Quarter wave antennas are just a whip. All Larsen mobile antennas meet the industry's most demanding specs for electrical efficiency and mechanical durability.

- VSWR at 1.5 to 1 or less.
- Colors: Black coil base; chrome or all black whip.
- 3-year No-Nonsense Warranty.™
- Made in USA

A NMO 150 B (2m)
Frequency: .... 144-174 MHz
Gain: ..... 3 dB
Electrical: ..... 5/8 Wave
Height: ..... 49"

B NMOQ C
Frequency: .... 144-448 MHz
Gain: ..... Unity
Electrical: ..... 1/4 Wave
Height: ..... 22" max.

C NMO 440 B (70cm)
Frequency: .... 440-460 MHz
Gain: ..... 3 dB
Electrical: ..... 5/8 over 1/4
Height: ..... 30"

D NMO 220 B (1.25m)
Frequency: .... 220-225 MHz
Gain: ..... 3 dB
Electrical: ..... 5/8 Wave
Height: ..... 32"

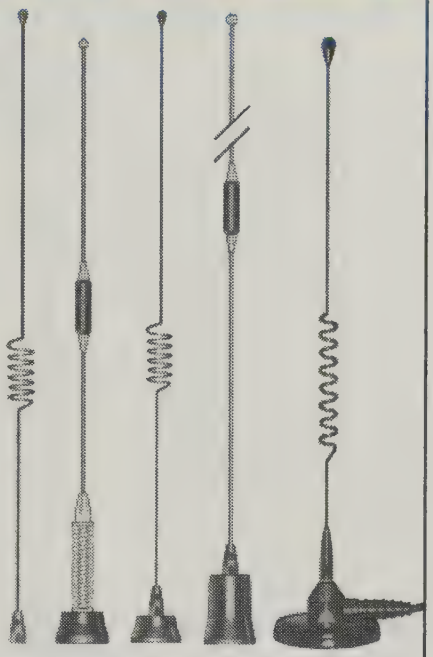
E MS 144 FME
Frequency: .... 144-148 MHz
Gain: ..... Unity
Power: ..... 35 watts
Electrical: ..... 1/4 Wave
Base: ..... 2" Mini Mag
Height: ..... 22"
Coax: ..... 12' RG 174
Connector: .. FME Universal
(Adapters available in BNC, PL, MPL, SPIN SMA, TNC)
Also available in MS220 FME, MS440 FME.

F NMO 2 / 70
Frequency: 144-148MHz
..... 442-448 MHz
Gain: 4 dB VHF; 2.4 dB UHF
Electrical: ..... 5/8 wave VHF
..... Collinear UHF
Height: 2m / 70cm Dual band

Dual-Band Antennas

Larsen dual band antennas provide excellent performance on 2m and 70 cm. Each antenna is factory preset to guarantee optimal performance with no tuning required.

- Range of dual band configurations are available.
- Kulrod copper-plated 17-7 stainless steel rods for greater transmit range.
- Soldered contacts.
- Premium materials and construction provide superior electrical performance and mechanical durability.
- VSWR 1.5:1 or less.
- 3-year No Nonsense Warranty.



(G) LMC 2 / 70 B
Frequency: 144-148/440-450 MHz
Gain: ..... Unity
Power: ..... 100 Watts
Type: VHF: Center load 1/4 wave
..... U HF: Center load 3/4 wave
Base: ..... Q CONE LMC B
Height: ..... 18"

(H) NMO 2 / 70 SH
Frequency: 144-148/440-450 MHz
Gain: ..... Unity
Power: ..... 100 Watts
Type: VHF: Center load 1/4 wave
..... UHF: Center load 3/4 wave
Base: NMO UHF base B w/spring
Height: ..... 17"
Whip: ..... W NMO 2/70 SH

(I) NMOQ 2 / 70 B
Frequency: 144-148/440-450 MHz
Gain: ..... Unity
Power: ..... 100 Watts
Type: V ..... VHF: Center load 1/4 wave
..... UHF: Center load 3/4 wave
Base: ..... NMO UHF base B
Height: ..... 18"
Whip: ..... W NMOQ 2/70 B

(J) NMO 2 / 70 C
Frequency: 144-148/440-450 MHz
Gain: ..... 2.4/4 dB
Power: ..... 100 Watts
Type: ..... 5/8 Wave; Collinear
Base: ..... NMO 2/70 BCO
Whip: ..... W 2/70
Height: ..... 36 3/4"

(J) NMO 2 / 70 B
Frequency: 144-148/440-450 MHz
Gain: ..... 2.4/4 dB
Power : ..... 100 Watts
Type: ..... 5/8 Wave; Collinear
Base: ..... NMO 2/70 BCO
Whip: ..... W 2/70 B Open coil
Height: ..... 33 1/2"

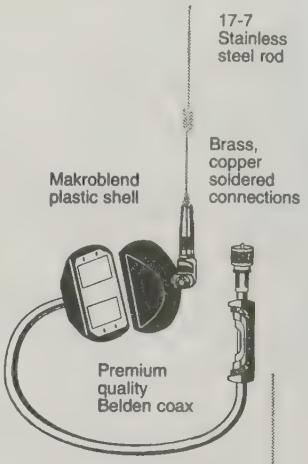
(K) MM 2 / 70 PL
Frequency: 144-148/440-450 MHz
Gain: ..... Unity
Power: ..... 100 watts
Coax: RG58 A/U Dual Shield, 12'
Pull strength: ..... 54 lbs.
Type: VHF: Center load 1/4 wave
..... UHF: Center load 3/4 wave
Base: ..... 3" round magnet mount
Connector: ..... PL 259 installed
Weight: ..... 1 lb.
Height: ..... 17"

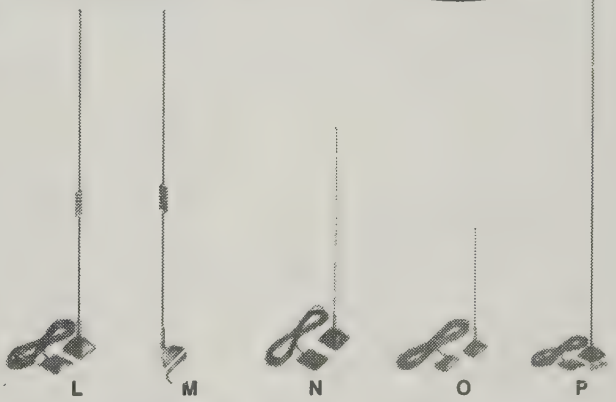
Call Toll-Free for Quotes on Larsen Antenna

On-Glass Antennas

Larsen's advanced design techniques in glass-mount antennas result in superior transmit range plus tremendous mechanical durability. Glass mount performance is nearly identical to rooftop mounts, with no holes to drill. Properly installed on-glass antennas grip for years under demanding conditions, yet are easy to remove and remount..

- Patented low-impedance design is electrically efficient.
- Single-band antennas are precut, 1/2 wave design.
- Transformer outside vehicle.
- Copper plated whips.
- Rated 50 watts output.
- VSWR at 1.5 to 1 or less.
- Less than .5 dB loss through glass vs. rooftop.
- New circuit board technology locks in solid state performance.
- 3M's best on-glass adhesive grip.
- Made in USA with 3 year No-Nonsense Warranty™





Dual-Band

The KG 2 / 70 is a VHF half-wave and a UHF collinear. It comes with 14 feet of RG-58/U coax. The antenna installs easily on any flat surface. Remove the whip without tools for car washes or low garages. **HRO Price $84.95**

(L) KG 2/70 UD (Dual)
Frequency: 144-148/442-448 MHz
Gain: ..... 2.4/4.5 dB*
Power: ..... 50 Watts
Height: ..... 32 3/4"
Type: ..... 1/2 Wave / Collinear
*Ground plane required for gain.

(M) KG 2/70 PL (Dual)
Frequency: 144-148/442-448 MHz
Gain: ..... 2.4 dB VHF; 4.5 UHF
Power: ..... 50 Watts
Type: ..... 1/2 wave / Collinear
Connector: ..... PL 259 (loose)
Height: ..... 32-3/4"

Single Band

(N) KG 220 PL (1.25m)
Band: ..... 220-224 MHz
Gain: ..... 2.4 dB
Type: ..... 1/2 wave
Connector: ..... PL 259 (loose)
Height: ..... 24"

(O) KG 440 PL (70cm)
Band: ..... 440-460 MHz
Gain: ..... 2.4 dB
Type: ..... 1/2 Wave
Connector: ..... PL 259 (loose)
Height: ..... 11-3/4"

(P) KG 144 PL (2m)
Frequency: ..... 144-160 MHz
Gain: ..... 2.4 dB
Type: ..... 1/2 Wave
Connector: ..... PL 259 (loose)
Height: ..... 45"

DIAMOND ANTENNA

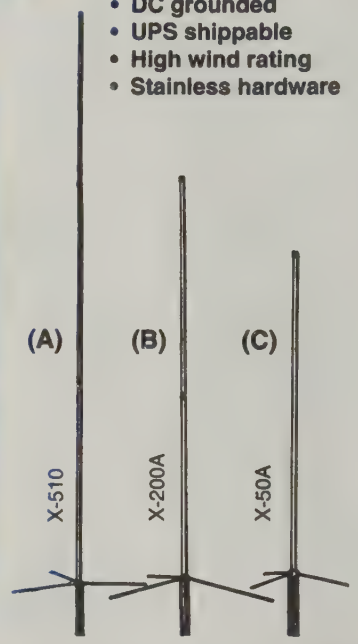
The Standard by Which All Others are Judged

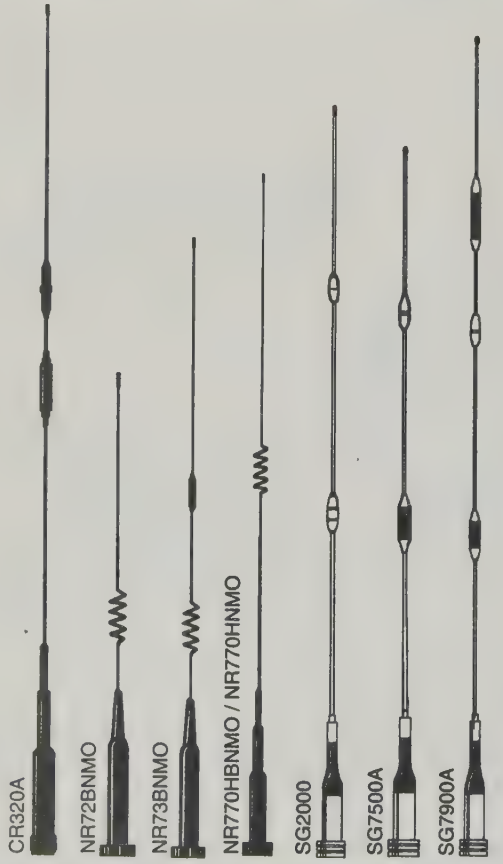
- Wide-band performance
- Highest gain
- Fiberglass radome
- Factory adjusted
- DC grounded
- UPS shippable
- High wind rating
- Stainless hardware

Diamond Base Station Antennas

Model	Bands	Gain, dB	Watts	Conn.	WT (lbs)	Lth (ft)	MPH	Fig	HRO Price
DP-GH62	6m	6	200	UHF	7	21	78	B	$149.95
F-22A	2 m	6.7	200	UHF	5	10.5	112	B	$109.95
F-23A	2 m	7.8	200	UHF	8	15	90	A	$159.95
F-142A	1 1/4 m	5.5	200	UHF	2	6	110	C	$124.95
F-718A*	70 cm	11.5	250	N	5	15	90	A	$229.95
F-1230A	23 cm	13.5	100	N	5	10.5	90	B	$159.95
U300A	70 cm/23 cm	8.6/13.2	100	N	4	8.3	110	C	$159.95
U5000	2m/70/23cm	4.5/8.3/11.7	150	N	3	6	135	C	$149.95
V2000A	6m/2m/70cm	2.1/6.2/8.4	150	UHF	4	8.3	110	B	$149.95
X-50A	2 m/70 cm	4.5/7.2	200	UHF	3	5.6	135	C	$114.95
X-200A	2 m/70 cm	6.0/8.0	200	UHF	4	8.3	112	B	$149.95
X-300A	2 m/70 cm	6.5/9.0	200	UHF	4	10.5	90	B	$169.95
X-510NA	2 m/70 cm	8.3/11.7	200	N	5	17.2	90	A	$199.95
X-510MA	2 m/70 cm	8.3/11.7	200	UHF	5	17.2	90	A	$199.95
X-500HNA	2 m/70 cm	8.3/11.7	200	N	7	17.8	90+	A	$249.95
X-700HNA	2 m/70 cm	9.3/13.0	200	N	12	24	90	-	$399.95
X-2200	2 m/1 1/4 m	6.0/7.8	200	UHF	4	10.6	112	B	$169.95
X-3200A#	2m/1 1/4m/70cm	6.0/7.8/8.0	100@	UHF	4	10	112	B	$219.95
X-6000A	2m/70/23cm	6.5/9.0/10.0	100	N	5	10	112	B	$199.95

All base antennas grounded for lightning protection #2m: 146-148 MHz
Factory adjusted for American Amateur Bands - No tuning required
* F-718A — 440-450; F718J – 430-440; F718L – 420-430
@ 100 wwatts on 2m, 200 watts on 1 1/4m and 70cm





Diamond Mobile Antennas

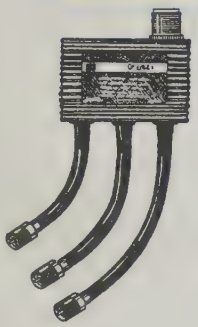
Model	Bands	Gain/dB	Watts	Mount	Lth/in	HRO Price
NR-124	23 cm	8.4	100	N	25	$66.95
NR-140A	1 -1/4 m	4	150	UHF	37	$60.95
SG2000	2 m	5.2	150	UHF	62	$89.95
CR-214S*	2 m/1 -1/4 m	2.1/3.4	150	UHF	37	$62.95
CR-224A	2 m/1 -1/4 m	5.0/6.0	200	UHF	68	$99.95
CR-320A#*	2 m/1 -1/4 m/70cm	2.1/3.8/5.5	100@	UHF	36	$98.95
CR-627B#*	6m/2m/70cm	2.1/4.5/7.2	150	UHF	60	$99.95
CR-627BNMO#*	6m/2m/70cm	2.1/4.5/7.2	150	NMO	60	$99.95
NR-72BNMO#*	2 m/70 cm	2.1/2.1	100	NMO	14	$46.95
NR-73BNMO#	2 m/70 cm	2.1/5.3	100	NMO	33	$62.95
NR-770HA	2 m/70 cm	3.0/5.5	200	UHF	40	$62.95
NR-770HNMO	2 m/70 cm	3.0/5.5	200	NMO	41	$64.95
NR-770R	2 m/70 cm	3.0/5.5	200	UHF	39	$59.95
NR-770SA*	2 m/70 cm	2.1/2.1	100	UHF	17	$41.95
NR-770HB#	2 m/70 cm	3.0/5.5	200	UHF	40	$64.95
NR-770HBNMO#	2 m/70 cm	3.0/5.5	200	NMO	41	$66.95
NR-790A	2 m/70 cm	4.5/7.2	120	UHF	58	$94.95
NR-2000NA	2 m/70/23 cm	3.1/6.3/9.7	100	N	39	$92.95
SG6000NMO*	6 m	2.15	150	NMO	39	$84.95
SG7000*	2 m/70 cm	2.1/3.8	100	UHF	18	$73.95
SG7200NMO	2 m/70 cm	3.2/5.7	150	NMO	38	$88.95
SG7500	2 m/70 cm	3.5/6.0	150	UHF	41	$86.95
SG7500NMO	2 m/70 cm	3.5/6.0	150	NMO	42	$88.95
SG7900	2 m/70 cm	5.0/7.6	150	UHF	62	$109.95
TG-509	2 m/70 cm	2.1/5.5	50	Glass	34	$179.95

Factory adjusted for American amateur bands, no tuning required.
SG and NR antennas require no ground system.
Mobile antennas have foldover feature with spring loaded hinge (except NR770SA,NR72BNMO, NR73BNMO).
Magnetic mount not recommended for antennas over 45°.
Black Anodized finish @ 100 watts on 1-1/4m, 200 watts on 2m and 70cm.
* Magnetic Mounts not recommended. Vehicle Grouind required

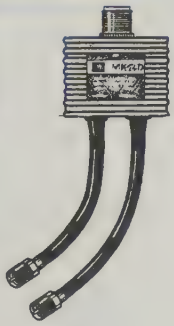
Phone Orders West 1-800-854-6046 • Mountain / Central 1-800-444-9476 • Southeast 1-800-444-7927

Frequencies

Band	Frequency
6 m	50 - 54 MHz
2 m	144 - 148 MHz
1-1/4 m	222 - 225 MHz
70 cm	440 - 450 MHz
23 cm	1240 - 1300 MHz

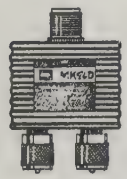


MX324
MX-2000
MX-3000
MX-3000N



MX-37
MX-72H
MX-72N
MX-214

MX-324D
MX-2000D
MX-3000D



MX-72D
MX-72DN
MX-214D

Diamond Duplexers and Triplexers

Model	Port	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol . dB	MIX Conn.	Port Conn.	HRO Price
MX-37	LPF HPF	1.6 - 470 900 - 1300	100 50		.25 .25	45 45	N-Jack (F)	UHF-Male/12" cable N-Male/12" cable	$74.95
MX62M	LPF HPF	1.6 - 56 76 - 470		600 600	.3 .3	50 50	SO-239	PL-259/12" cable PL-259/12" cable	$77.95
MX-72D	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .2	60 60 60	SO-239	PL-259/no cable PL-259/no cable	$52.95
MX-72DN	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .2	60 60 60	SO-239	PL-259/no cable N-Plug/no cable	$52.95
MX-72H	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .2	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable	$58.95
MX-72N	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .1	60 60 60	SO-239	PL-25912" cable N-Male/12" cable	$58.95
MX-214	LPF HPF	140-150 220-225	150 100	400 250	.3 .4	45 45	SO-239	PL-259/12" cable PL-259/12" cable	$73.95
MX-214D	LPF HPF	140-150 220-225	150 100	400 250	.3 .4	45 45	SO-239	PL-259 no cable PL-259/no cable	$89.95
MX-324	LPF BPF HPF	1.6-60 220-225 400-550		800 600 500	.3 .4 .4	40 40 40	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	$99.95
MX-324D	LPF BPF HPF	1.6-60 220-225 400-550		800 600 500	.3 .4 .4	40 40 40	SO-239	PL-259 no cable PL-259/no cable PL-259/no cable	$99.95
MX-2000	LPF BPF HPF	1.6-60 110-170 300-950		800 800 500	.15 .20 .25	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	$94.95
MX-2000D	LPF BPF HPF	1.6-60 110-170 300-950		800 800 500	.15 .20 .25	60 60 60	SO-239	PL-259/No cable PL-259/No cable PL-259/No cable	$99.95
MX-3000	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.15 .25 .30	55 55 55	N-Jack(F)	PL-259/12" cable PL-259/12" cable N-male/12" cable	$94.95
MX-3000D	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.15 .25 .30	55 55 55	N-Jack(F)	PL-259/No cable PL-259/No cable N-male/No cable	$89.95
MX-3000N	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.20 .30 .40	55 55 55	N-Jack(F)	PL-259/12" cable N-Male/12" cable N-male/12" cable	$94.95

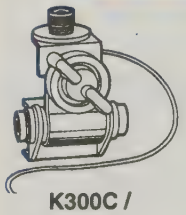
Diamond Mobile Mounts

Model	Description	HRO Price
C101	UHF base 6.5' RG316 Teflon coax w/PL259	$29.95
C110	10' mini-8/RG8X cable extension for front radio installation	$14.95
C211	Combination of C101 and C110. 16.5 feet cable assembly	$39.95
DPK-4NM-N	Type N on Magnet. Similar to DP- SPM/5D. N-Plug. Good to 1300 MHz.	$49.95
K200KM	Black Trunk/Hatchback mount with fold over feature. 16.5 feet RG-58A/U w/PL-259	$49.95
K300C	Deluxe rain gutter mount. Black, Adjustable position. 10 feet RG316 Teflon Coax w/PL259	$69.95
K300KM	Deluxe rain gutter mount. Black, adjustable position. 16.5" RG-58A/U w/PL-259	$79.95
K400-3/8C *	Special mount for 3/8X24 thread Antenna. 6.5 feet RG316 w/PL-259	$69.95
K400C *	Deluxe mount with UHF type base. 6.5 feet RG-316 Teflon coax w/PL-259	$79.95
K400N *	Deluxe mount with type-N base. 13.5 feet RG316 Teflon coax w/type-N connector	$89.95
K400NMO	Deluxe mount with NMO type base. 6.5 feet RG316 Teflon coax w/PL-259	$67.95
K540KM	Deluxe Mirror/Luggage rack mount. Black, adjustable. 16.5' RG58A/U w PL259	$67.95
K550KM	Deluxe mini van luggage rack mount. Black, adjustable. 16.5' RG58A/U w PL259	$69.95
K600M	Tilt angle (0-9 degrees) trunk mount. Black. RG-188 and low loss 5 mm cable.	$69.95
K601M *	UHF hideaway trunk mount. 6.5 feet RG316 Teflon coax w/PL-259	$69.95
K601NMO	NMO hideaway trunk mount. 6.5 feet RG316 Teflon coax w/PL-259	$69.95
NMO/UHF	Adapter for imported antennas PL-259 to Motorola NMO base. Max 45" antenna	$23.95
SPM35	UHF type base on heavy 1.5 lb/4" magnetic, 13' 5mm coax/PL-259.	$44.95

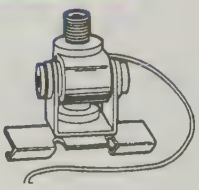
* Use C110, 10' cable extension for front radio installations

Connector Types

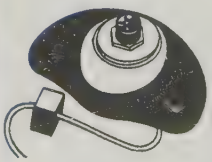
Type	Description
UHF	SO-239/PL-259
NMO	Motorola Type



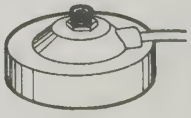
K300C /
K300KM



K400C
K400CNMO
K400N
K400-3/8C



K600M



SPM35
DPK-4NM-M

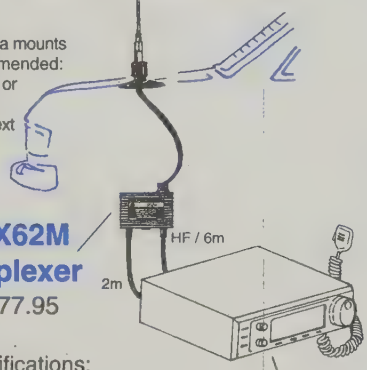
DIAMOND ANTENNA

Mobile Antenna System
Model MV3A

MV3A has 4 band capability: 2m, 6m, plus two HF bands through use of loading coils.

Bands Supplied:	10m / 6m / 2m
Opt. Loading Coils:	40m/20m/17m/15m
Power, P.E.P.:	HF 120w / VHF 200w
Mount Connection:	UHF
Length:	57"
SWR:	1.5:1 nominal
MV3A Price:	**$84.95**

Antenna mounts recommended: K400C or K600M (see next page)



MX62M Duplexer
$77.95

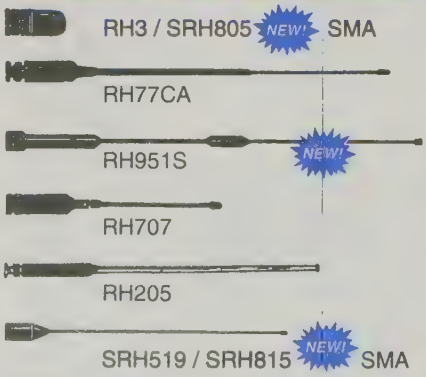
Specifications:
- HF / 6m & 2m duplexer.
- 1.6–56 MHz LPF
- 76–470 MHz HPF
- (76-120 receive only)
- Watts: 600 P.E.P.
- Loss: .2 dB LPF, .3 dB HPF
- Isolation: 50 dB

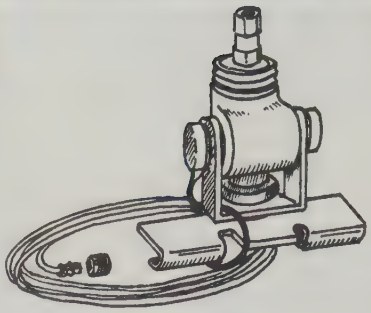
Use with HF / VHF mobile Transceivers such as the IC706, or combine 2m and HF rigs.

Optional Loading Coils

HVC7	40m	$39.95
HVC14	20m	$39.95
HVC18	17m	$39.95
HVC21	15m	$29.95

Antennas for Handhelds





K400-3/8C
Special Trunk Mount
for 3/8 x 24 thread Antennas

Here's the ideal mounting system for Outbacker Perth, OB Jr., and other medium weight antennas. A spring is recommended for stiff or heavy antennas.

Power: 350 watts RMS
Cable: 6 1/2' RG316 teflon coax
Connector: PL-259
Adjustment: 2 axis

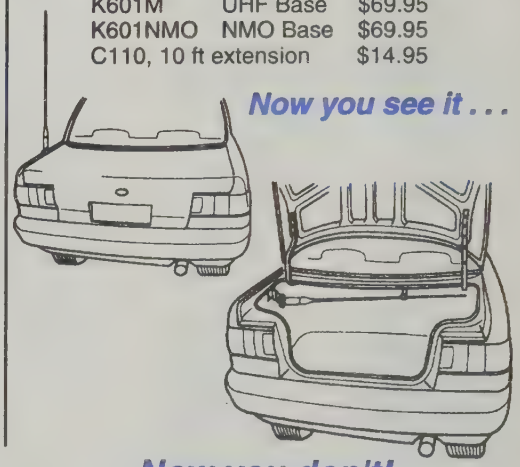
K400-3/8C **$69.95**
Note: Use C110, 10 ft extension for front radio installation. $14.95

Hide-Away Antenna Mount
Model K601

As easy as 1–2–3 the K601 Hide-Away Mount folds your mobile antenna safely into the car trunk. Fully adjustable, it fits most vehicles.

Color: Black.
Power Rating: 350 W RMS; 500 W P.E.P.
Cable: 6 1/2' RG316 teflon coax w / PL-259.
Recommended antennas: NR73BNMO, NR770HNMO, NR770HBNMO, SG7200NMO, NR770H, NR770HB, NR770RA & SG7500A.

K601M	UHF Base	$69.95
K601NMO	NMO Base	$69.95
C110, 10 ft extension		$14.95



Diamond Accessories

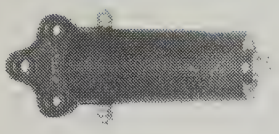
Model	Description	HRO Price
CX-210A	Heavy duty wideband coax switch, DC-1000 MHz. 1.5 kW, SO-239 connector.	$51.95
CX-210N	Heavy duty wideband coax switch, DC-1500 MHz. 1.5 kW, N connector.	$93.95
DL-30A	Dummy load. DC-500 MHz, 15W RMS (max)/100w peak. PL-259 connector.	$49.95
HB-100	Desktop mounting bracket for handheld transceivers	$44.95
HB-400	HT tranceiver dash mount. Clamps to air conditioning louvers	$19.95

Diamond Handheld and Receiving Antennas

Model	Description	HRO Price
D-130J	Wideband discone 25-1300 MHz. 200 W transmit 50-1300 MHz. No cable.	$99.95
RH-3	2m / 70cm dual-band HT antenna. 1.75" BNC. 120-900 MHz receive.	$34.95
RH-77CA	High gain 2m / 70cm dual-band HT antenna. Receive range to 900 MHz. BNC.	$34.95
RH-205	2m HT antenna, telescopic, 5/8 fully extended, 47.5"; 1/4 retracted, 9".	$27.95
RH-519	2m / 70cm slim dual-band HT antenna. Flexible. 8" BNC, 10 watts.	$34.95
RH-707	2m / 70cm dual-band, tiltable whip HT antenna. 8-1/4" BNC.	$37.95
RH-951S	High gain 2m/70cm/23cm slim tri-band HT antenna. Flexible. BNC (Wide band receive)	$52.95
SRH-519	2m / 70cm slim dual-band HT antenna. Flexible. 8" SMA, 10 watts.	$34.95
SRH-805	2m / 70cm / 23cm tri-band HT antenna. 1.75" SMA, 10 watts.	$29.95
SRH-815	2m / 70cm / 23cm tri-band HT antenna. Flexible. 6" SMA, 10 watts.	$40.95

Baluns

BENCHER



ZA-1A Balun

The ideal 1:1 Balun for dipoles, quads, inverted vees, and yagis from 80 - 10 meters lets your antenna radiate, not your feed line. It will accept 1/4" support rope for inverted vees. No rusting materials used. No ferrite cores to saturate and cause TVI. DC grounded for lightning protection. Included "O" ring seals coax connector. Rated 5KW peak. This tough, well-made product, will provide years of reliable service. **HRO Price $37.95**

hy-gain by Telex

BN-4000: Series 243S

These current-type baluns come in three models. BN-4000B for beams; BN-4000D for dipoles; BN-4000N with a type-N connector. Frequency 1 to 54 MHz for beams. **Call for HRO Discounts.**

BN-86: 242S

Broadband 50 ohm ferrite, voltage-type balun. Use-able from 3-30 MHz. Comes with clamp to bolt to boom and SO-239 connector. **HRO Price $36.95**

CENTAUR NEW!

Centaur high performance Balun products represent state-of-the-art designs and the best material applications available to the communications industry. These baluns have stainless steel hardware, heavy duty body materials, and military grade internal components. They are well suited for adverse weather. Centaur Baluns are very conservatively rated and backed with Centaur's LIFETIME WARRANTY.

Model	Description	Price
B11W10-50	.5 to 50 MHz, dipole, 1:1,3kW SSB, Torodial material. Teflon So239A connectors, stainless steel hardware	$49.95
B11Y10	Same as B11W10 except for Yagi antennas. Supplied with stainless steel mounting bands	$49.95
B41Y10	For Yagi antennas, 4:1 match	$64.95
B41W10	4:1 balun for 4:1 ladder line to coax match. 3kW SSB rating, .5 to 50 MHz	$64.95

Antenna Rope

Synthetic Textiles

Black Dacron® Polyester

This antenna rope is constructed of strong, double braid Dacron® polester. It is black for UV protection and has excellet resistance to mildew and abrasion. The rope ties and cuts easily, sealing effectively with a hot knife. No expensive hardware is required. Sizes and prices are shown below.

Size Model	Strength	HRO Price *
3/32" ST-3/32-100	260+ lbs	$9.95
3/16" ST-3/16-100	770+ lbs	$14.95
5/16" ST-5/16-100	1790+ lbs	$19.95

* Price per 100 feet

Insulators

hy-gain by Telex

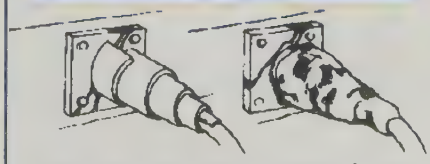
Center Insulator: Model 157S

For dipoles. Accepts 1/4" or 3/8" coax. **HRO Price $26.95**

End Insulator: Model 156

For multiband dipoles. Pair of 7" heavily serrated end insulators. **HRO Price $26.95**

Coax-Seal



Coax-Seal will seal all types of coax fittings, baluns, antenna parts and connectors of any shape. Adheres to most surfaces. Wrap Coax-Seal around the object you want to protect and then mold it into shape. Keeps moisture out of the coax fitting on antenna feed lines. Need to make a change? Just remove it and start over.

Coax

Belden Call for Belden Quotes

Coax can be purchased in any length up to 1000 feet. 1000' continuous lengths of 9913 or 8214 must be sent by truck.

8214 - RG8 / U

8214 is a standard RG8 / U, #13 stranded copper center conductor, cellular polyethylene insulation, 97% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 1.8 dB loss per 100' at 100 MHz. The most popular cable for HF and VHF / UHF. Use when long cable runs are not required.

RG213 / U

RG-213 / U coax, #13 stranded copper center conductor, solid polyethylene insulation, 97% bare copper shield, non-contaminating PVC jacket, 50 ohm impedance, 66% velocity factor and 2.2 dB loss per 100' at 100 MHz. This RG-8 type cable is best for HF use. It may be buried.

9913 / 9913F

9913 is RG8-type coax, #9.5 solid copper conductor, semi-solid polyethylene insulation, 100% foil plus 88% braid shield, PVC jacket, 50 ohm impedance, 84% velocity factor and 1.4 dB loss per 100' at 100 MHz. The best cable for VHF and UHF applications. Use **9913F** for more flexible runs.

9258 - RG8X

RG8X is small diameter coax, #16 stranded copper center conductor, cellular polyethylene insulation, 95% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 3.7 dB loss per 100' at 100 MHz. Good for short VHF runs and most HF uses.

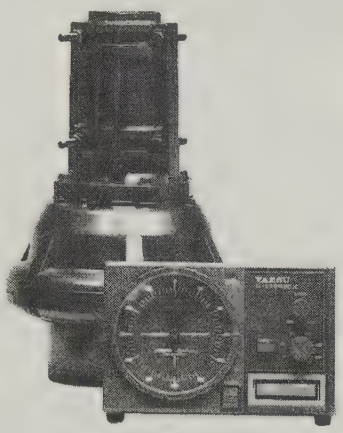
9356 - RG8 / U

100' roll of 8214 RG8 / U coax with PL-259 connectors (crimp type) installed on each end for your convenience.

8000

14 strand "copper weld" bare copper wire. Great for long wires or dipole. High tensile strength.

Yaesu's high quality rotators for amateurs include models for medium to large arrays and for satellite work. There are also provisions for computer control. Contact your nearest HRO for more specifications and discount prices on Yaesu products.



G2800SDX

The G-2800SDX is a high-technology rotator designed to turn the largest tower-mounted antenna arrays.

G-800S / G-800SDX

The G-800 rotator series is designed for medium to heavy loads and antennas up to 20 square feet. The G-800SDX is the same as the G-800S with the addition of presets.

G-1000SDX

The G-1000SDX is designed to handle bigger arrays, up to 22 square feet. A great value.

G-450XL

The G-450XL is ideal for smaller HF and VHF/UHF antennas. Features 360 degree radial compass display with overlap. A slight modification required for 220V operation.

G-5400B

This is the most popular azimuth and elevation rotator for satellite, moonbounce or other space communications work. It combinations the G400 and G500 rotators to provide both horizontal and vertical antenna rotation in a single unit. The control box has two large meters, one showing elevation and the other azimuth. Meter aiming accuracy is within ±4%. The G-5400B provides for full 180° elevation rotation with a rotation time of 58 seconds. A full 360° azimuth rotation can be achieved in just 50 seconds. This rotator accepts up to a 2.5" mast, a maximum 1-5/8" horizontal crossboom and 440 pounds of vertical load. **Suggested List Price $629.95**

G-500A

This is an elevation rotator for satellite work. The control box shows elevation in degrees.

Rotator Computer Controllers

The GS-23 Rotator Computer Controller is for the G-800SDX, G-1000SDX and G-2800SDX. **Suggested List Price GS-23 $345.95**

The GS-232 model is for the G-5400. **Suggested List Price GS-232 $547.95**

Rotator Separation Kit

For some applications it is desirable to separate the azimuth from the elevation rotator on the tower. This separation kit provides all the hardware for the rotator to implement this separation. **HRO Price $30.95**

Rotator Cable

Belden

HRO carries two **Belden rotator cables**. Use standard duty cable for runs up to 100 feet. For longer runs, please use heavy duty cable. Remember, Belden quality is **tops** in the industry

8 wire, standard duty - Model 8448 - 8 wire cable using six #22 and two #18 tinned copper conductors. PVC insulation; chrome PVC jacket.

8 wire, heavy duty - Model 9405 - 8 wire cable using 6 - #18 m and 2 - #16 tinned copper conductors. PVC insulation; chrome PVC jacket.

When Ordering Cable

Please order cable in multiples of 50 feet. Lengths up to 1000 feet in a continuous spool can be provided. **Call for quotes.**

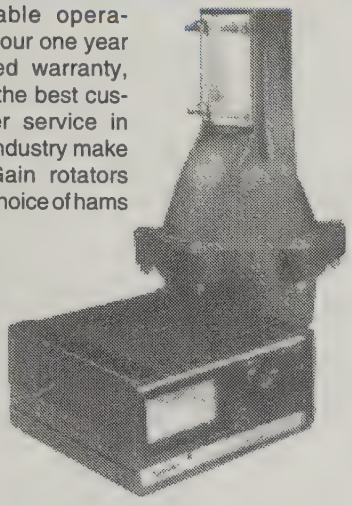
Rotator Specifications

	Model	Input Voltage	Motor Voltage	Rotation Time	Stationary Torque	Rotation Torque	Maximum Windload	Max. Vert Load	Max. Mast Size	Cable Type	Weight lbs (kg)	Sugg. List
Hy-Gain	HDR-300A	110/220 V	24 VAC	60 sec	7500 in lbs	5000 in lbs	25 sq ft	500 lbs	3 in	7-wire	55 (25)	$1,198.95
	T2X#	110 V *	24 VAC	60 sec	9000 in lbs	1000 in lbs	20 sq ft	800 lbs	2.06 in	8-wire	28 (12.7)	$613.95
	HAM-IV#	110 V *	24 VAC	60 sec	5000 in lbs	800 in lbs	15 sq ft	500 lbs	2.06 in	8-wire	24 (11)	$515.95
	HAM-V#	110 V *	24 VAC	60 sec	5000 in lbs	800 in lbs	15 sq ft	500 lbs	2.06 in	8-wire	24 (11)	$881.95
	CD-45II	110 V	24 VAC	60 sec	800 in lbs	600 in lbs	8.5 sq ft	200 lbs	2.06 in	8-wire	22 (10)	$319.95
	AR-40	110 V	24 VAC	60 sec	450 in lbs	350 in lbs	3 sq ft	100 lbs	2.06 in	5-wire	14 (6.4)	$260.95
M2	OR-2800	110/220 VAC	28 VAC	70 sec	17,000 in lbs	2500 in lbs	35 sq ft	1800 lbs	3 in	8-wire	28.5 (13)	$1,299.95
Yaesu	G-450XL	110 V	24 VAC	51 sec	217 ft lbs	39.8 ft lbs	10 sq ft	242 lbs	2 in	5-wire	7 (3.2)	$269.95
	G-800S	110 VAC	24 VAC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	$399.95
	G-800SDX	110 VAC	24 VAC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	$499.95
	G-1000SDX	110 VAC	24 VAC	55 sec	5200 in lbs	79 ft lbs	22 sq ft	440 lbs	2.5 in	6-wire	15 (6.8)	$609.95
	G-2800SDX	110 VAC	24 VAC	55 sec	20,832 in lbs	219 ft lbs	34 sq ft	880 lbs	2.5 in	6-wire	26(11.8)	$1,099.95
	G-500A	110 VAC	24 VAC	61 sec	1740 in lbs	876 in lbs	11 sq ft		1.5 in	6-wire	5.5 (2.5)	$309.95

* 220 VAC models are available at additional costs #Difital versions available. Call for quotes

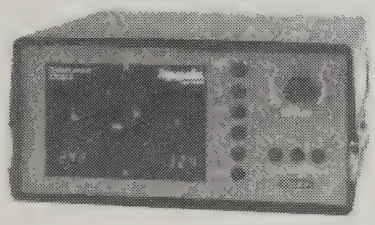
hy-gain by Telex

Reliable operation, our one year limited warranty, and the best customer service in the industry make Hy-Gain rotators the choice of hams



around the world. Every tower manufactured comes with mounting holes for the Hy-Gain bolt pattern.

The heavy duty HDR-300A has a control cable connector and a stainless steel shaft. It gives you a choice of North or South centering orientation.



Pathfinder DCU-1 Digital Control System

Hy-Gain's DCU-1 Pathfinder is the first all-digital rotator control box made in the USA. With six heading presets, automatic break delay and computer compatibility, the DCU-1 Pathfinder establishes a new standard for rotator systems.

Digital and analog displays help you preprogram your favorite beam headings. The main ROTATE knob sets the target bearing within 1 degree. An all-in-one RS-232 computer interface unit and simple Basic program is included. Features motor slow down, automatic calibration, and programmable center of rotation. The DCU-1 may be paired with the T2X, HAMIV or HAMV. **Suggested List $607.95**

M²

OR-2800P Rotator

The Orion OR-2800P is engineered for long life, reliability and performance while turning large antennas or systems. It has a strong ductile iron mast clamp to supports up to 3" masts, extended and hardened drive shaft, and prop-pitch style torque plate. The rotator housing fits inside most popular towers and mates to standard tower / rotator plates.

The RC2800P Control Box has digital readout, variable speed control, slow start, and reverse delay, programmability, preset, 2 rotator capacity, coast-down, true AZ readout-continuous and infinite limit position control.

The OR-2800P carries a 1 year warranty is made in the U.S.A. **Suggested List $1329.95**

Wind Area Capacity	35 sq. ft.
Starting Torque	3500 in. lbs.
Rotating Torque	2500 in. lbs.
Breaking Torque	17000 in. lbs.
Vertical Load Capacity	1800 lbs.
Mast Size (O.D.)	1.75-3"
Rotational Speed (360)	70-140 sec.
Readout Accuracy	1 degree
Input Voltage	110/220 AC 50/60 Hz
Motor Voltage	28 VAC
Cable Type	8 conductor
Weight (Rotator unit)	28.5 lbs.

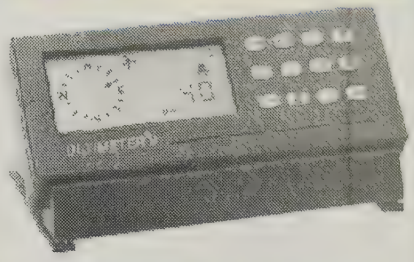
The OWL

Want to keep those birds off your antenna system? The OWL is just the trick.

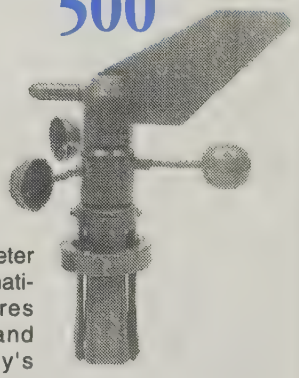
Mount this fella on top of your tower and the birds will stay away.

HRO Price $19.95

Weather Stations



ULTIMETER 500



The Ultimeter 500 automatically stores today's and yesterday's highs, lows and total rain fall. It also store long therm highs and lows. There is a master reset to reset all values simultaneously. Includes an adjustable rain rate alarm alerting to possible flood conditions. The 3 mode serial pot facilitates local data logging and remote data reporting via telephone, modem or packet. The unit os easy to use with convenient front panel controls. Measures wind speed to 274 mph, has a 16 point analog "compass rose" display, includes 40', 4 conductor cable with modular plug. Requires 1" to 11/4' outside diameter mast. **HRO Price $229.95**

ULTIMETER 2000

The Ultimeter 2000 delivers more than 100 weather readings yet it is simple to use. Each key is labeled with an icon that indicates its function. Provides wind speed, barometric pressure, temperature, humidity and rain (optional) information. Gives current data as well as today's, yesterday's and long term highs and lows. I/O port for computer connectivity. **HRO Price $379.95**

MA-SERIES CRANK-UP MASTS

The premier MA-Series crank-up Tubular Towers are designed to be both safe and neighbor friendly. The slender design gives a Clean, flagpole-like appearance, while allowing for antennas up to 10 sq. feet in 50 mph winds. Per EIA Specifications, adequate safety margins are included. Uniform Building Code calculations are available for most models.

The MA-40 and 550 models come standard with flat base. two 1/2" x 10" anchor bolts, wall bracket and rotor plate mounted on top of top section. No guying is required when tower is properly bracketed to the eve of your roof.

MA-Series towers are completely self-supporting only when used with accessory MARB or MAB Series bases. The MARB Series rotor base allows the entire tower and antenna to be rotated from the base (rotor not included). This provides for easy rotor maintenance plus emergency hand rotation of the entire tower and antenna.

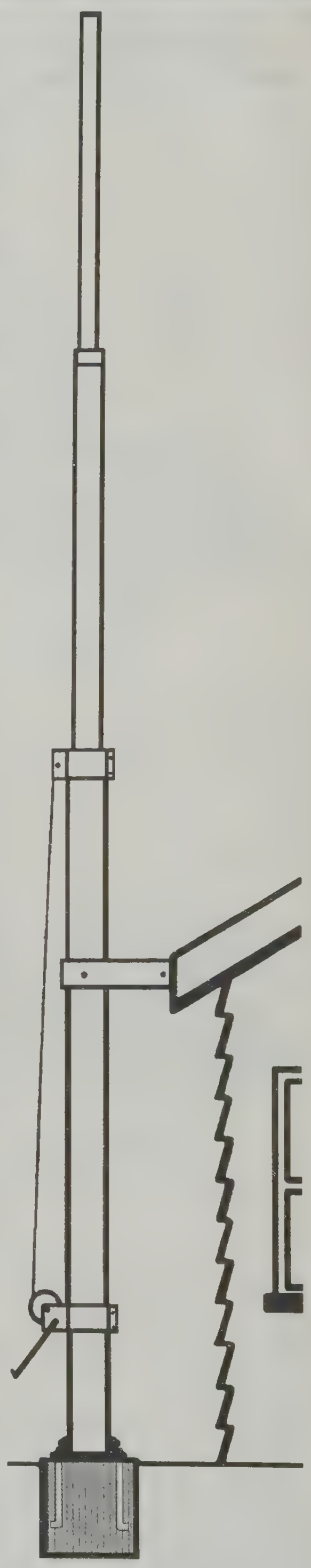
The MA-550MDP, 770MDP and 850MDP models include a heavy duty motor drive with positive pull down. The MDP models provide motorized raising and lowering of the tower. A remote control unit (RMC-1000) accessory is available that allows raising and lowering from your ham shack or other remote location.

All models without motor drives come standard with manual hand winches which have load actuated brakes for maximum safety. This feature prevents the winch from free-wheeling and causing injury to you or your installation in the event that you loose your grip during raising or lowering.

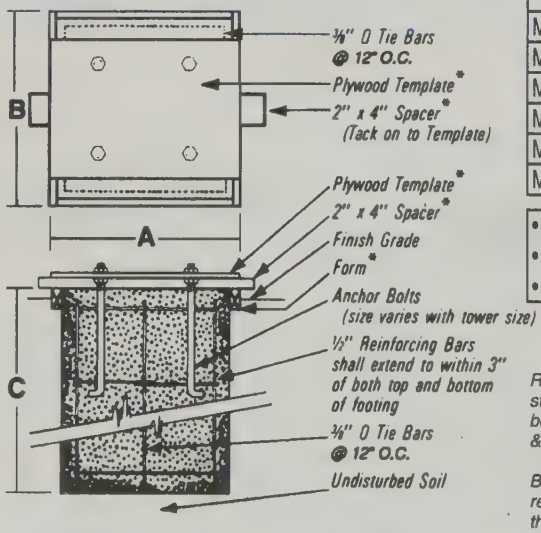
All steel used at US Tower conforms to ASTM specifications. All welding is done by certified factory personnel. All of our towers are factory tested by trained personnel before leaving the plant.

Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
MA-40	40'	21'6"	2	242	3" sq.	4.5"	$679.95
MA-550	55'	22'1"	3	435	3" sq.	6.625"	$1,069.95
MA-550MDP	55'	22'1"	3	620	3" sq.	6.625"	$2,899.95
MA-770	75'	22'10"	4	645	3" sq.	8.0"	$2,699.95
MA-770MDP	75'	22'10"	4	830	3" sq.	8.0"	$3,999.95
MA-850MDP	90'	23'6"	5	1128	3" sq.	10.0"	$5,399.95

All Towers will handle 10 sq. ft antenna at 50 MPH winds.



MA-SERIES BASE INFORMATION


B
A
C
⅛" Ø Tie Bars @ 12" O.C.
Plywood Template*
2" x 4" Spacer* (Tack on to Template)
Plywood Template*
2" x 4" Spacer*
Finish Grade
Form*
Anchor Bolts (size varies with tower size)
½" Reinforcing Bars shall extend to within 3" of both top and bottom of footing
⅛" Ø Tie Bars @ 12" O.C.
Undisturbed Soil

*To be removed after base is installed.

Model	A	B	C	HRO Price
MA-40 standard flat base	16"	16"	16"	CALL
MA-550 standard flat base	20"	20"	20"	CALL
MARB-40 Rotor Base	3'	3'	4'	$549.95
MARB-550 Rotor Base	3'	3'	5'6"	$649.95
MARB-770 Rotor Base	3'	3'	6'6"	$779.95
MARB-850 Rotor Base	4'	4'	6'6"	$919.95

- Base dimensions may vary with different soil compositi
- Allow ample time for concrete to cur
- MAB and MARB dimensions are the same.

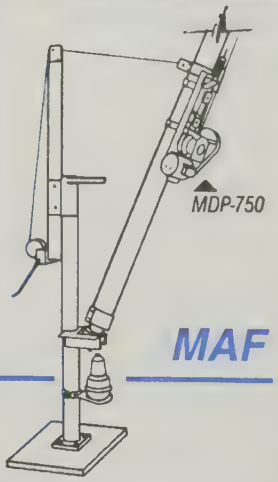
Rebar is not provided by US Tower. MA-40 & 550 use their standard base as a template. These standard bases use only 2 bolts and require no rebar. Wooden template included with MAB & MARB bases.

Because of wide variations throughout the country in zoning requirements and loading conditions (snow, wind, ice, etc.), it is the responsibility of the customer to make Certain that his Tower conforms to all applicable codes. We recommend you obtain all necessary permits prior to purchase .

The factory reserves the right to make changes or modifications without notice.

MA-SERIES ACCESSORIES

The Customer is Responsible
for obtaining all local city or county building and tower permits
AND
for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.



MAF Raising Fixture

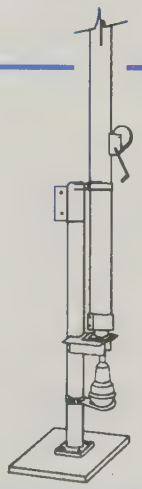
MAF-Series Raising Fixture accessory for easy raising and antenna servicing. For use with MARB and MAB bases.

Model	Description	Weight
MAF-40	Raising fixture for MA-40	35#
MAF-550	Raising fixture for MA-550	70#
MAF-770	Raising fixture for MA-770	75#
MAF-850	Raising fixture for MA-850	80#

MAF

MARB Freestanding Rotator Base

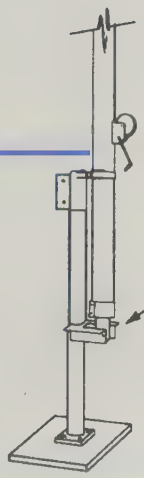
MARB-40	Freestanding rotator base for MA-40 with four 3/4" x 27" anchor bolts and thrust bearing	75#
MARB-550	Freestanding rotator base for MA-550 with four 1" x 36" anchor bolts and thrust bearing	140#
MARB-770	Freestanding rotator base for MA-770 with four 1" x 36" anchor bolts and thrust bearing	195#
MARB-850	Freestanding rotator base for MA-850 with four 1-1/8" x 36" anchor bolts and thrust bearing	280#



MARB

MAB Freestanding Type Base

MAB-40	Freestanding hinged base for MA-40 with four 3/4" x 27" anchor bolts	55#
MAB-550	Freestanding hinged base for MA-550 with four 1" x 36" anchor bolts	119#
MAB-770	Freestanding hinged base for MA-770 with four 1" x 36" anchor bolts	175#
MAB-850	Freestanding hinged base for MA-850 with four 1-1/8" x 36" anchor bolts	180#



MAB

Coax Standoff Arms

CX-2M	Coax standooff arms for MA-40	4#
CX-3M	Coax standoff arms for MA-550	6#
CX-4M	Coax standoff arms for MA-770	8#
CX-5M	Coax standoff arms for MA-850	10#

IV-16	The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. The IV-16 cannot be used with the MARB rotator base.	5#

Call Toll-Free for Discounts on U.S. Towers and Accessories

Model	Description	Weight

Motor Drives

MD-75	Heavy-duty motor drive with one HP motor and gear box.	155#
MDP-750	Heavy-duty motor drive with one HP motor, gear bos, and positive pull down.	185#

Remote Control Accessories

RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location.	18#
MCL-100	Limit switch control package includes limit switches, limit switch brackets, and control box at the base of the tower.	7#

TMM SERIES

US Tower's *latest design includes the compact TMM Series towers giving Hams in restricted areas an alternative. The TMM Series has a minimum retracted height of 11'4" (may vary, depending on rotator used) and a maximum height of 47' including mast. At the towers' retracted height, visual impact is reduced to a minimum and antenna servicing is made easier. Typically the tower and antenna are below the roof line of your home when the tower is fully retracted.*

The TMM Series towers are lightweight, freestanding crank-up towers that allow up to 18 square feet of antenna in 50 mph winds per EIA specifications. The TMM-433HD handles 24 square feet. These lightweight towers should provide many years of trouble free service. All of our towers have a hot dipped galvanized finish inside and out.

The TMM-433SS and 541SS must have the rotator top mounted. The TM-433HD will accept the Alliance HD-73 and Telex Ham IV inside the tower. Oversized rotators will prevent full retraction of your tower; however, they may be used if full retraction is not required. This restriction is dependent on location of rotator plate. All TMM Series towers include anchor bolts, rotor plate, hinged T-base, load actuated winch, and eight feet of 2" OD x 120" antenna mast.

The TMM-433SS will accept the MD-75 motor drive accessory. The TMM-433HD and 541SS will accept the MD-75 and MDP-750 accessory motor drives. The MDP-750 motor drive accessory is compatible with both of our MCL-100 and RMC-1000 limit switch packages (see accessories).

TX SERIES

US Tower's *freestanding TX Series crank-up towers are as strong or stronger than most competitors' heavy-duty models. The TX Series towers have 21 foot sections with 4 foot overlap to provide extra height and strength. In addition, the overlap helps prevent binding while lowering your tower in high wind and conditions.*

The TX Series towers have a large enough top section (12 1/2") to permit installation of most rotators inside the section for maximum strength while allowing the section to fully retract. Cross bracing at critical points on the tower ensures safety and additional strength. All US Towers crank-up towers have a heavy-duty, hot dipped galvanized finish both inside and out, which should provide many years of trouble free service.

The TX Series towers come complete with rotator plate and base hardware which includes, large steel anchor bolts and heavy-duty steel T-base that allows the tower to hinge on for easy installation. All T-bases will accept the TRX Series raising fixtures for easy one man installation. All TX Series towers include Fulton hand winches (except MDP and MDLP models) which feature automatic load actuated brakes for maximum safety. Masts and motor drives are available as accessories (see accessory page).

The TX-472MDP comes complete with MDP-750 motor drive and limit switch brackets. The TX-489MDPL includes the MDPL-1000 motor drive and limit switch brackets. Limit switch assemblies and remote raising devices are available (MCL-100) (RMC-1000) for all MDP-750 and MDPL-1000 motor drive units (see accessory page for description).

US Tower's TX Series requires no guying. The wind loading is calculated at 18 square feet of antenna in 50 mph winds per EIA specifications. To assist you in applying for necessary construction permits, Uniform Building Code calculations are available for most models.

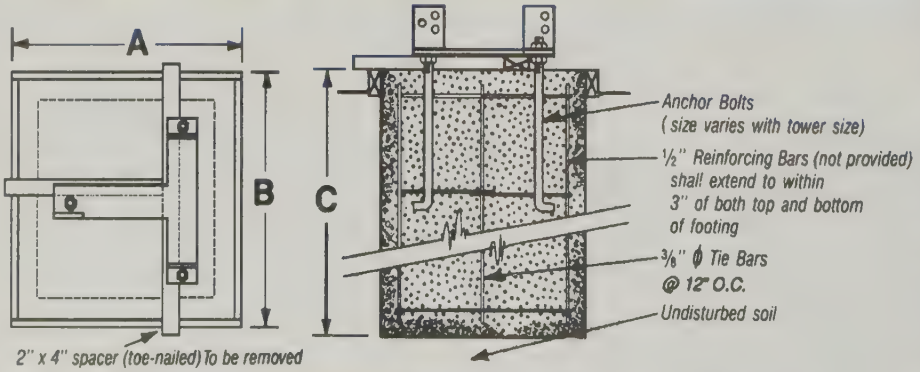
HDX SERIES

US Tower's HDX Series *heavy-duty crank-up towers have up to 2 1/2 times more windloading capacity than others commonly advertised. This superior strength allows for large stacked arrays, while using our commercial type bases and anchor bolts that can be easily installed and vertically adjusted. All HDX Series T-bases are designed to use our TRX Series raising fixtures to make installations and antenna servicing a one man job.*

Modified top sections for the HDR-300 rotators are available at a small additional cost. US Tower carries as accessories many different sizes and strengths of masts which can be used with the HDX Series towers. The HDX-572MDPL and 589MDPL motorized towers provide dual level wind, positive pull down and heavy duty gear box features. The HDX-572MDPL comes only with limit switch brackets. The HDX-589MDPL comes complete with the MCL-100, limit switch package. All towers using MDP-750 and MDPL-1000 motor drives may use the RMC-1000 accessory limit switch package which allows the raising and lowering of your tower from the comfort of your ham shack or any remote location. MCL-100 is also available (see accessory page).

All HDX Series towers come complete with rotator plate, anchor bolts and heavy-duty T-base (doubles as template). US Tower's special T-base design allows the tower to hinge for easy installation. US Tower's crank towers do not require guy wires. The HDX Series towers are rated at 30 square feet of antenna at 50 mph winds per EIA specifications. To assist you in getting a construction permit, Uniform Building Code calculations are available for most towers.

CRANK-UP TOWER BASE INFORMATION



Model	A	B	C
TMM-433SS	3'	3'	4'
TMM-541SS	3'	3'	4'6"
TMM-433HD	3'	3'	5'4"
TX-438	3'	3'	5'
TX-455	3'	3'	6'3"
TX-472	4'	4'	7'
TX-489	4'	4'	8'6"
HDX-538	3'	3'	6'3"
HDX-555	4'	4'	6'6"
HDX-572	4'	4'	8'6"
HDX-589	5'	5'	8'6"
HDX-689	5'	5'	9'6"
HDX-5106	5'	5'	9'6"

SELF-SUPPORTING CRANK-UP TOWERS

Tower Specifications

COMPACT TMM-SERIES CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
TMM-433SS	33' w/o Mast	11'4"	4	315	10"	18"	$1,219.95
TMM-433HD	33' w/o Mast	11'4"	4	400	12.5"	20 7/8"	$1,479.95
TMM-541SS	41' w/o Mast	12'	5	430	10"	20 7/8"	$1,599.95

All Towers handle 18 sq. ft. antenna at 50 MPH winds. TMM-433HD handles 24 sq.

TX-SERIES FREE-STANDING CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
TX-438	38'	21'6"	2	355	12.5"	15"	$1,149.95
TX-455	55'	21'	3	670	12.5"	18"	$1,399.95
TX-472	72'	22'8"	4	1040	12.5"	21 5/8"	$2,799.95
TX-472MDP	72'	22'8"	4	1210	12.5"	21 5/8"	$3,799.95
TX-489	89'	23'4"	5	1590	12.5"	25 5/8"	$4,899.95
TX-489MDPL	89'	23'4"	5	1800	12.5"	25 5/8"	$7,399.95

All Towers will handle 18 sq. ft. antenna at 50 MPH winds.

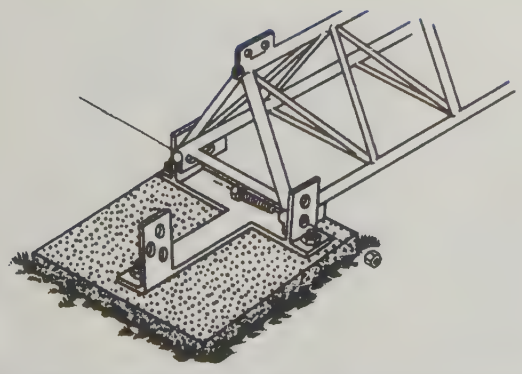
HDX-SERIES HEAVY-DUTY CRANK-UP TOWERS

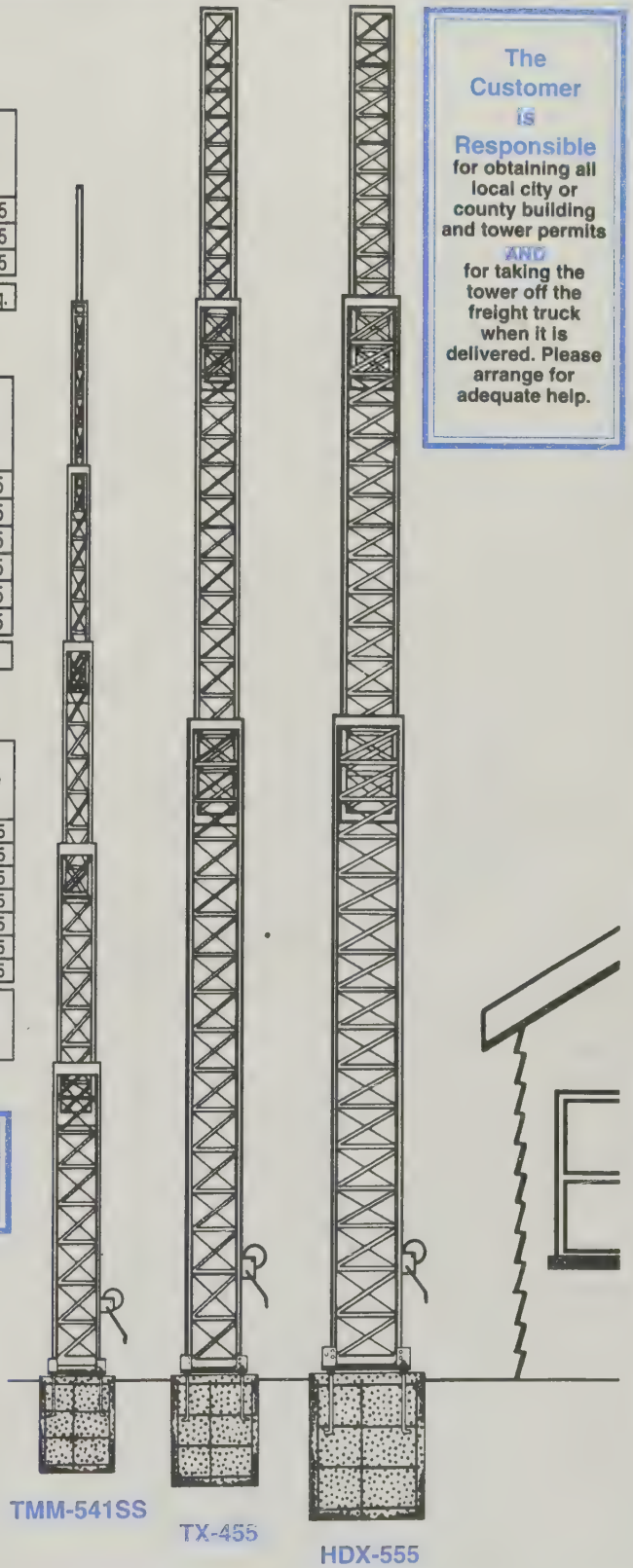
Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
HDX-538	38'	21'6"	2	600	15"	18"	$1,469.95
HDX-555	55'	22'	3	870	15"	21 5/8"	$2,399.95
HDX-572	72'	22'8"	4	1420	15"	25 5/8"	$4,429.95
HDX-572MDPL	72'	22'8"	4	1600	15"	25 5/8"	$6,669.95
HDX-589MDPL	89'	23'8"	5	2440	15"	30 5/8"	$8,869.95
HDX-689MDPL	89'	23'8"	5	3450	18"	37 1/8"	$16,999.95
HDX-5106MDPL	106'	24'8"	6	3700	15"	37 1/8"	$18,649.95

All Towers will handle 30 sq. ft. antenna at 50 MPH winds.
HDX-689MDPL rated at 60 sq. ft of antenna at 50 mph winds.
HDX-5106MDPL rated at 35 sq. ft. of antenna at 50 mph winds.

The Customer is Responsible for obtaining all local city or county building and tower permits AND for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

Call Toll-Free for Discounts on U.S. Towers and Accessories

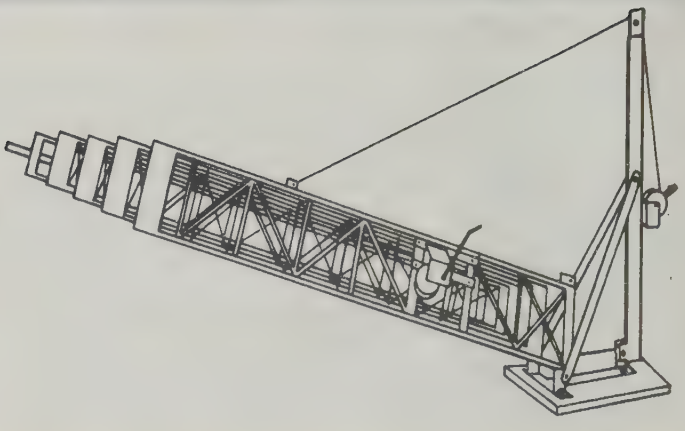




The factory reserves the right to make changes or modifications without notice.

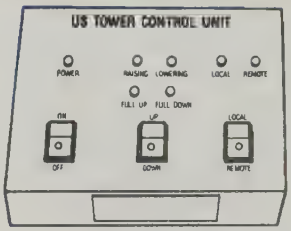
Raising Fixture

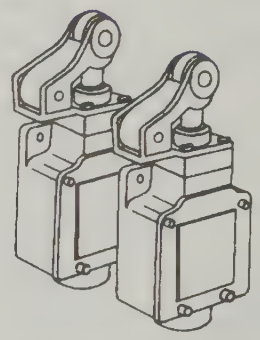
Model	Description	Weight
TRX-80	Standard model tower raising fixture for TMM, TX, and HDX series towers.	120#
TRX-80HD	Heavy-duty model tower raising fixture for TX and HDX series towers.	155#
	Both TRX-80 and 80HD are designed to be easily mounted on your tower's hinged T-base for quick and safe one-man installation or antenna servicing.	



Remote Control

Model	Description	Weight
RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location. The RMC-1000 includes limit switches, limit switch brackets, and two relay boxes. The RMC-1000 can only be used with the MDP-750 and MDPL-1000 motor drives.	18#
MCL-100	Limit switch control package. The MCL-100 includes limit switches, limit switch brackets and control box at the base of the tower. The MCL-100 allows you to raise and lower your tower with automatic shut down when maximum or minimum height is reached. The MCL-100 can only be used with the MDP-750 and MDLP-1000 motor drives.	7#



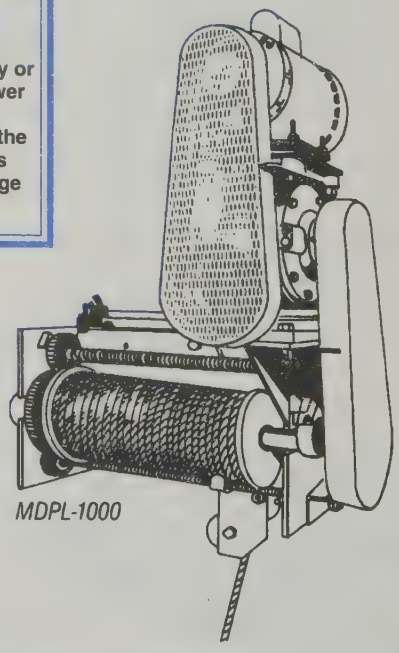


Motor Drives

Model	Description	Weight
MD-75	Heavy-duty motor drive with 1 HP motor and gear box.	155#
MDP-750	Heavy-duty motor drive with 1 HP motor, gear box and positive pull down. US Tower's positive pull down feature is designed to mechanically apply the same strength in the retraction process as is used in the raising of your tower. Positive pull down is very important in lowering your tower in high wind conditions. The MDP-750 differs from the standard motor drive (MD-75) unit which releases tension on the cables allowing the weight of the upper sections to be the only lowering force.	185#
MDLP-1000	Heavy-duty motor drive with 1 HP motor, heavy duty gear box, positive pull down and dual level wind features. Dual level wind is an exclusive US Tower design allowing the cable to wind on the motor drum in a uniform manner. This prevents the cable from overlapping on the drum. For description of positive pull down see MDP-750.	220#

The Customer is Responsible
for obtaining all local city or county building and tower permits AND for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

Call factory for replacement 1 HP motors, handwinches, limit switches, 3/16" x 7" x 19" and 1/4" x 7" x 19" aircraft cable, anchor bolts, belts, pulleys, sprockets, and modified bases. Tower dolly rentals are available. The factory reserves the right to make changes or modifications without notice.



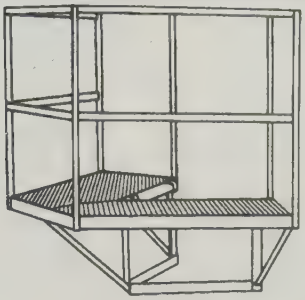
MDPL-1000

CRANK-UP ACCESSORIES

Model	Description	Weight

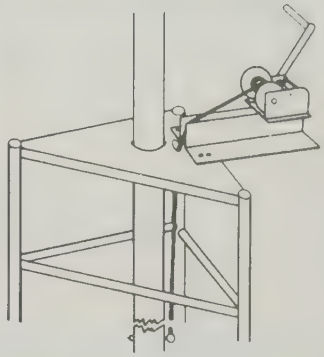
Service Platform

HDP	Large service platform with safety railings to provide a safe and comfortable surface while installing or maintaining your antenna and rotator.	125#



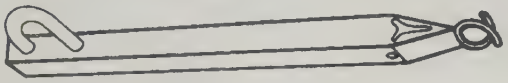
Mast Raising Fixture

MRF	Mast raising fixture with winch and cable that attaches to the top of your tower to assist in raising and lowering your antenna mast.	20#



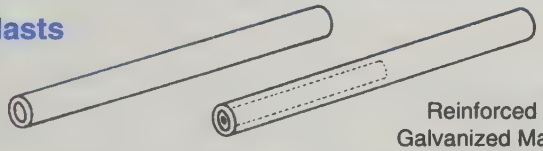
Coaxial Arm Sets

IV-16	The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. The IV-16 cannot be used with MARB rotator base.	5#



CX-2	Set of 2 coax standoff arms	6#
CX-3	Set of 3 coax standoff arms	8#
CX-4	Set of 4 coax standoff arms	10#
CX-5	Set of 5 coax standoff arms	13#

Masts



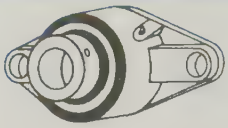
Reinforced Galvanized Mast

US Tower offers two different types of masts. The M-5, 10, 15 and 20 masts have .120" wall thickness. The M-15R and 20R have steel pipe inserts in the lower half of the mast which provides extra strength where most needed without adding unnecessary weight in the top portion. The M-15R and 20R have a wall thickness of .250".

Model	Description	Weight
M-5	2" O.D. x 5 foot galvanized mast	14#
M-10	2" O.D. x 10 foot galvanized mast	25#
M-15	2" O.D. x 15 foot galvanized mast	40#
M-15R	2" O.D. x 15 foot reinforced galvanized mast	50#
M-20	2" O.D. x 20 foot galvanized mast	55#
M-20R	2" O.D. x 20 foot reinforced galvanized mast	70#

3/4" x 27"	Anchor bolt with 2 nuts	5#
1" x 36"	Anchor bolt with 2 nuts	10#
1-1/8" x 27"	Anchor bolt with 2 nuts	12#
RP-3	Rotator plate for 10" section	5#
RP-4	Rotator plate for 12.5" section	7#
RP-5	Rotator plate for 15" section	9#

Thrust Bearing



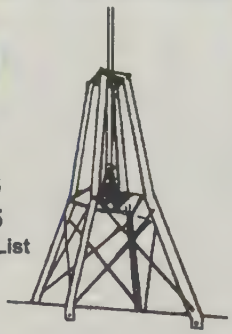
TB-2US	Thrust Bearing for 2" mast, 2 flange holes	10#

Tower Accessories

S - Standard
O - Optional

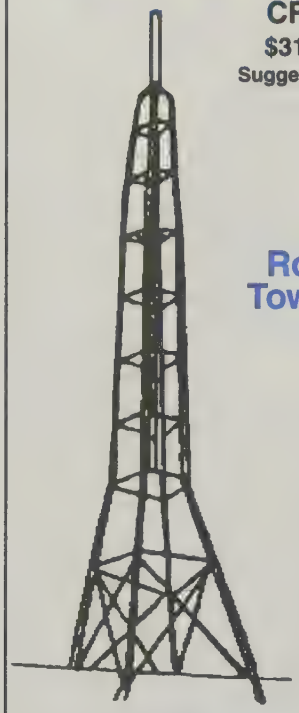
	TX-438	TX-455	TX-472	TX-472MDP	TX-489	TX-489MDPL	HDX-538	HDX-555	HDX-572	HDX-572MDPL	HDX-589MDPL	TMM-433SS	TMM-433HD	TMM-541SS	HRO Price
MASTS															
M-5	O	O	O	O	O	O		O	O	O	O	O	O	O	$40.95
M-8												S	S	S	$69.95
M-10	O	O	O	O	O	O		O	O	O	O	O	O	O	$77.95
M-15	O	O	O	O	O	O		O	O	O	O	O	O	O	$109.95
M-20	O	O	O	O	O	O		O	O	O	O				$139.95
M-15R	O	O	O	O	O	O		O	O	O	O				$159.95
M-20R	O	O	O	O	O	O		O	O	O	O				$209.95
RAISING FIXTURE															
TRX-80	O	O						O	O				O	O	O	$439.95
TRX-80HD				O	O	O	O			O	O	O				$569.95
SERVICE PLATFORM															
HDP				O	O	O	O			O	O	O				$819.95
COAX STANOFF ARMS															
CX-2	O							O								$55.95
CX-3		O							O							$77.95
CX-4			O	O						O	O			O	O	$109.95
CX-5					O	O						O			O	$149.95
MOTOR DRIVES															
MD-75	O	O						O	O				O	O	O	$999.95
MDP-750		O	O	S					O					O	O	$1549.95
MDPL-1000			O		O	S				O		S				$2109.95
REMOTE CONTROL															
RMC-1000		O	O	O	O	O			O	O	O	O		O	O	$999.95
MCL-100		O	O	O	O	S			O	O	S	S		O	O	$469.95
MISCELLANEOUS															
3/4" X 27" bolts	S												S	S	S	$26.95
1" X 36" bolts		S			S	S		S		S	S					$32.95
1-1/8" X 36" bolts			S	S					S			S				$43.95
RP-3													S		S	$39.95
RP-4	S	S	S	S	S	S								S		$47.95
RP-5								S	S	S	S	S				$52.95
MRF	O	O	O	O	O	O		O	O	O	O	O		O		$269.95
TB-2US	O	O	O	O	O	O		O	O	O	O	O		O		$99.95
IV-16	O	O	O	O	O	O		O	O	O	O	O	O	O	O	$41.95

CREATE



CR-18
$319.95
Suggested List

Roof Towers



CR-45
$689.95
Suggested List

CR-30
$549.95
Suggested List

Create Roof Towers are constructed of high grade aluminum with galvanized steel bracing for added stability and strength.

The towers will easily accommodate your antenna requirements. The three sizes will support VHF antennas, HF tri-banders and OSCAR systems.

Rotators easily mount inside the towers. An optional thrust bearing (Model #CK46) is recommended. Guying is required on all roof towers. Maximum mast size is 2.5".

Create Roof Towers

Model	Height	Max Antenna Wind Load in FT2	Base Width	Max Vertical Load in lbs.	Tower Weight in lbs.
CR-18	5'10"	21 @ 90 MPH	31 1/3"	440	18
CR-30	9'10"	27 @ 90 MPH	39"	1322	33
CR-45	14'9"	23 @ 90 MPH	39"	881	57

Unarco-Rohn

25G & Accessories

25G	10' tower section.
25AG2	Top secton for use with communication antenna. Mast support tube is 2 1/4" O.D., 36" total length, extending 18" above apex of side rails.
25AG4	8' top section for communication antenna. Upper end terminates in 11" diameter flat, circular plate with a 2 1/4" hole in center.
AS25G	Accessory shelf.
GA25GD	Guy assembly
SB25G	3'4" short base section for concrete.
SBH25G	3'4" hinged short base section for concrete.
BPC25G	Concrete base plate.
BPH25G	Hinged base plate for concrete.
HB25AG	Adjustable house bracket (0-15")
HB25BG	Adjustable house bracket (0-24")
HB25CG	Adjustable house bracket (0-36")
HBU	Universal house bracket (6-30").
TB3	Heavy-duty thrust bearing is recommended for 2" O.D. mast.
WP25G	Work platform.
EF2545	Aluminum erection fixture.

Other accessories available.
Rohn towers shipped truck collect.
Call for information and quotes.

Catalog Prices

HRO discount prices shown are current as of March 1, 1997, when this catalog was assembled. Prices change both up and down. Please be sure to call one of our toll-free numbers or check our Web page for the latest prices.

We at HRO strive to offer the most competitive prices in the industry on a full line of quality ham radio products.

Many manufacturers offer "coupons" or similar promotions. Call or check our Web Page at **http://www.hamradio.com** for the latest manufacturer promotions.

General Information for Our Valued Customers

Easy Ordering

Six toll-free 800 numbers are available for orders. They are located throughout the United States. This provides personnel at one location or another to answer your questions for extended hours Monday through Saturday. You will find the same low prices at all locations and, thanks to computers, we have the stock levels of all locations available to each salesperson for estimates of availability and delivery.

24 Hour "On-Line" Ordering is now available on the INTERNET! URL is *http://www.hamradio.com*

Shipments are made from any of our 12 locations that has the particular items you need in stock. In most cases, the shipment will be made from the location nearest you (if stock is available). HRO is trying to provide the quickest shipments in the industry using these methods.

California customers can now order using a toll-free number. The number is 1-800-854-6046. It is no longer necessary for California customers to pay for the phone call.

Sales Tax

State and local laws require us to collect and remit State sales / use tax on orders shipped from any of our 12 locations INTO Arizona, California, Colorado, Georgia, or Virginia.

You will find that this small extra charge will be more than overcome by the convenience of the largest ham radio inventories in the United States. You will also find courteous and knowledgeable salespeople to assist you. We think you will find HRO to be the company you want backing you when it comes to dealing with any problems you might have with manufacturers or shipping companies.

Phone Orders

To place a phone order using a credit card, please have the following information available if you are a first-time caller or have not made a recent purchase from HRO. We will ask for your callsign (if any), credit card number, expiration date, your home telephone number, and possibly the name, address, and telephone number of the bank listed on your charge card statement.

Payment

We accept Visa, MasterCard and Discover Card. Personal checks are also accepted; however, processing time will delay shipment by some 10 days. When using a credit card, please have the card in front of you since we will need all the information, including the name of the issuing bank. If the card holder's BILLING address differs from the shipping address, please be sure to specify both addresses and telephone numbers. For your protection, we thoroughly investigate the validity of all credit card purchases.

COD Orders

COD payments must be made in cash, cashiers check, or money order at the time of delivery. There is a small fee for COD shipments.

Commercial Sales Purchase Orders

Written purchase orders will be accepted from city, state, and federal agencies, and, with prior approval of credit, from commercial organizations. HRO quotes, in most cases, prices that require payment on receipt of merchandise. You may find a surcharge for credit terms applied to your pricing. Please indicate that you require terms when calling for price quotes.

Delivery

All Alaska and Hawaii shipments via UPS must be shipped by Blue Label (2nd Day Air) or Red Label (Overnight). Please ask for charges.

In a Hurry? If you find it necessary to expedite shipments, UPS has Red Label (overnight), Blue Label (2nd-day) and Orange Label (3 day) services available at an extra cost. Please request charges for these services.

Foreign Deliveries We ship world-wide. Contact our stores, preferably by fax, with your needs. We can give you quotes and details for placing your foreign order. Payment methods include wire transfer direct to our bank as well as payment by VISA/ MC charge cards or check drawn in U.S. Funds from a U.S. Bank. Shipments are made (depending on size) by UPS, FED EX, Emery, DHL, or international air mail. Some orders to some foreign countries cannot be insured to the full value.

Truck Delivery On day of delivery, if by truck, please be sure to have enough help, and / or proper equipment on hand for unloading merchandise. Truck drivers are NOT required to provide assistance. If you are not experienced at handling large, awkward items such as towers, antennas or amplifiers, please ask properly trained people to assist you.

Canadian Orders can now be shipped via UPS. These costs will be added to your invoice.

Damaged Items

UPS If the item is obviously damaged, note this with the driver and refuse shipment. This item will be returned to HRO and another will be sent at no additional charge. If hidden damage is noted, contact UPS as soon as possible. They will arrange pickup. Once the item is received by HRO, a replacement will be sent.

TRUCK If there is damage or the shipment is short, it is the customer's responsibility to file the claim with the trucking company. At the time of receipt of item, it is recommended that you have the driver write "damaged" or indicate shortage on the bill of lading he gives to you. Be sure to have the same notation as well as drivers signature on his copy also.

MAIL It is the customer's responsibility to file all loss or damage claims with the postal department.

Prices

Many prices shown are suggested list price. In most cases we offer large discounts. Equipment manufacturers constantly change prices, offer specials or react to the Dollar / Yen exchange rates. Simply call one of our 800 numbers and our staff will be happy to quote you the current selling price of the item you are interested in. Prices are subject to change without notice or obligation to the customer. Sorry, we cannot honor typos in this catalog.

Software

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

Lost Items

When your order is delivered, please carefully count items and if anything is missing, notify HRO at once.

Occasionally, cartons shipped at the same time will arrive at their destination two or three days apart.

If you notify HRO within 10 days, we will replace lost or damaged items after completion of proper documentation and acceptance by the shipping agency.

New Equipment Returns

Products are not sold for evaluation. Under some circumstances (at the discretion of HRO) and with prior approval of the store of purchase, HRO will accept an item for return. Under most circumstances a 15% restocking fee and all freight charges will be assessed.

Your means of refund for returns will be the same as that used for your original payment except for cash, which will be refunded by check. HRO will pay from its corporate offices. It can take up to two weeks.

Defective merchandise may be returned within 10 days of the original purchase for exchange. Original receipt must accompany the return. Items returned for warranty replacement consideration must also include a completed, signed, "Warranty Replacement Certification Form." Customers who return equipment for replacement consideration without this form completed and signed cannot be considered for any possible warranty replacement, only warranty repair. No exceptions. Contact your salesman for details.

Manufacturer's New Equipment Warranties

Ham Radio Outlet supports all manufacturers' warranties. Actual warranty terms are included within the shipping container of most items. If needed, you may request from any of our locations a free copy of the manufacturer's written terms for any warranteed product. Please request by model number and indicate the page in this catalog that represents the product.

Ham Radio Outlet will in many cases provide in-store repairs; please contact the store of purchase for information. It will be necessary to provide us with the invoice number and purchase date, as most manufacturers need this information to process under their FREE warranty repair terms.

New Equipment Warranty Returns

When returning equipment for repair, please pack the item in original packing material or something similar to provide adequate protection during the shipping process. Note on box: "ATTENTION SERVICE." Include a copy of your purchase invoice, and a complete and detailed description of the problems. Without the invoice or a complete description, delays will be experienced in providing the proper service and returning the item to you. Be sure to insure the package for its replacement cost.

HRO will repair or replace the defective item at our option. If the item is found to be defective under the terms of the manufacturer's warranty, no charge will be made for service or return shipping within continental USA. It is the customer's responsibility to ship all defective items to the service center for warranty repair.

Problems

HRO prides itself in its ability to service the customer. If there is a problem please contact the manager of the store from which you purchased the merchandise. If for some reason, your problem cannot be corrected by that store manager, please feel free to call Ham Radio Outlet Corporate Headquarters at (510) 831-1771 and explain the situation. At this point our national sales staff will see that your problem is corrected.

Thank You for choosing

Ham Radio Outlet

The World's Largest Ham Outlet

HAM RADIO OUTLET

Serving You From Coast to Coast and Around the World

Call Toll-Free From Alaska and Hawaii

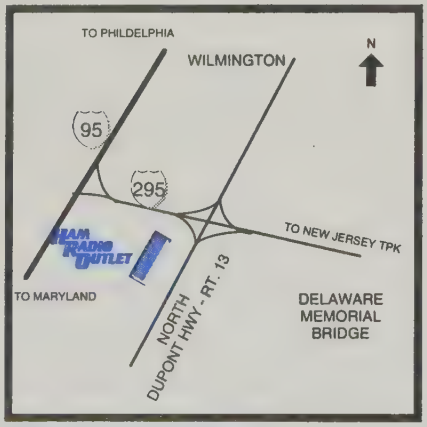
Order Toll-Free From a Location Near You

If your closest 800 number is busy, please call one of our other numbers.
Phone Hours: 9:30 AM to 5:30 PM Monday - Saturday

12 Locations!

24-Hour Internet Ordering: http://www.hamradio.com

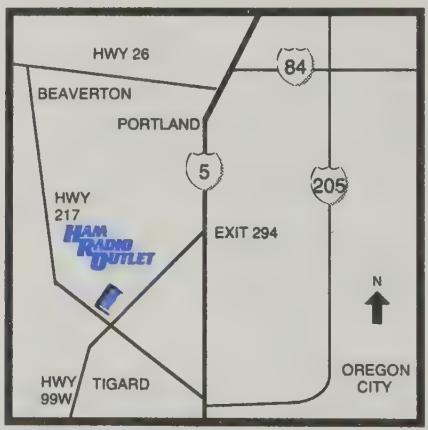
24-Hour FAX Order Lines: At All 12 Locations



NEW CASTLE, DE 19720

1509 North Dupont Hwy, US13
Parkway Plaza
(302) 322-7092
(800) 644-4476
24 Hour Fax (302) 322-8808

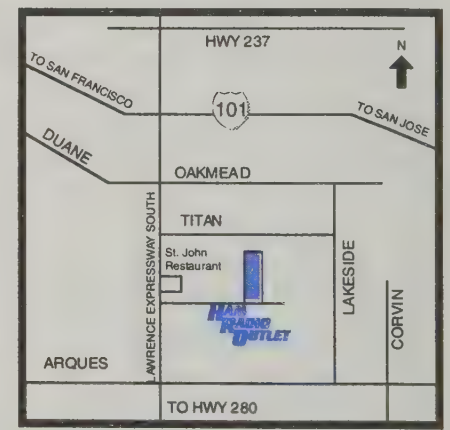
Chris K1SI **Mgr**
Bob N9GG Sales Mgr
Jimmy KA3LLL
Gail KA3ITN
Rick K3TL, Coy K3FO



PORTLAND, OR 97223

11705 S.W. Pacific Hwy (99W)
(503) 598-0555
(800) 854-6046
24 Hour FAX (503) 684-0469

Earl KE7OA **Mgr**
Jack KG7LX
Joe N6FRA

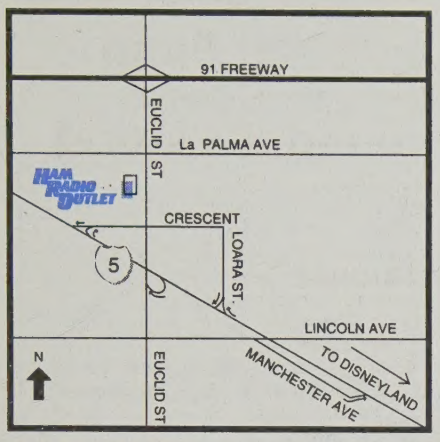


SUNNYVALE, CA 94086

510 Lawrence Expwy, #102
(408) 736-9496
(800) 854-6046
24 Hour FAX (408) 736-9499

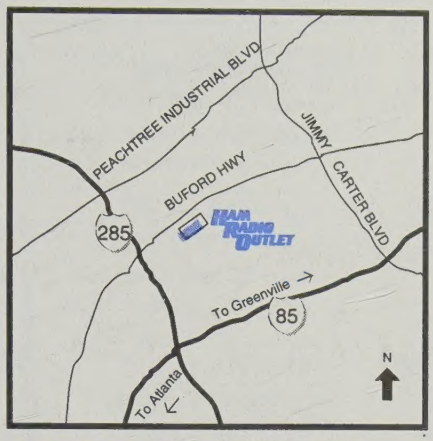
Ken K1ZKM **Mgr**
Jack AC6FU
Rob W6KR
George WB6DSV
Roy W6II George W3AB
Jon, Mike KE6MRE

All Stores Open 10am - 5:30pm Monday - Saturday STORE LOCATIONS



ANAHEIM, CA 92801
933 N. Euclid St.
(714) 533-7373
(800) 854-6046
24 Hour FAX (714) 533-9485
Near Disneyland

Janet WA7WMB **Mgr**
Randy N6BMD
Terry N6WI, Jerry KN6JK
Bruno KC6WGR
Mike WB6VUB, Sherri
Dan N6PEQ ,Dale KB7UB,



ATLANTA, GA 30340
6071 Buford Hwy.
(770) 263-0700
(800) 444-7927
24 Hour FAX (770) 263-9548
Doraville, 1 mi. north of I-285

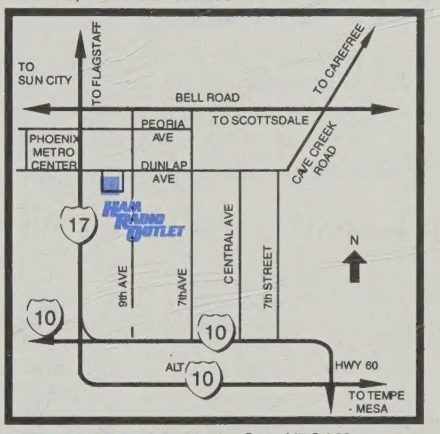
Mark KJ4VO **Mgr**
Don AC4VJ, Phil N4DRO
Neil N4FN,David KE4QME,
Bill KF8AZ, Rick WD4ABO
Fred W4TDC
Steve KS4KJ

DENVER, CO 80231
8400 E. Iliff Ave. #9
(303) 745-7373
(800) 444-9476
24 Hour FAX (303) 745-7394

Joe KDØGA **Mgr**
John N5EHP
Roger KØYY
Orville KFØPQ
Dean ACØS

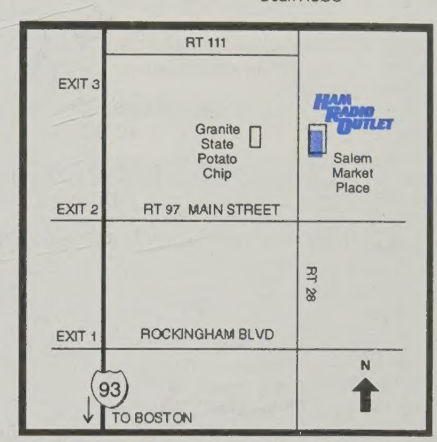
OAKLAND, CA 94606
2210 Livingston St.
(510) 534-5757
(800) 854-6046
24 Hour FAX (510) 534-0729
I-880 at 23rd Ave. Ramp

Mark KE6OFP **Mgr**
Mach K6KAP
Brent N6XBH
Cliff KK6SJ
Don W6ER
Frank KD6UE



PHOENIX, AZ 85021
1939 W Dunlap
(602) 242-3515
(800) 444-9476
24 Hour FAX (602) 395-1244

Gary N7GJ **Mgr**
Wendell KE7UP
Kathy N7AQM
Mike KØQZ
Marshall W7DQS
Len KB7LPW

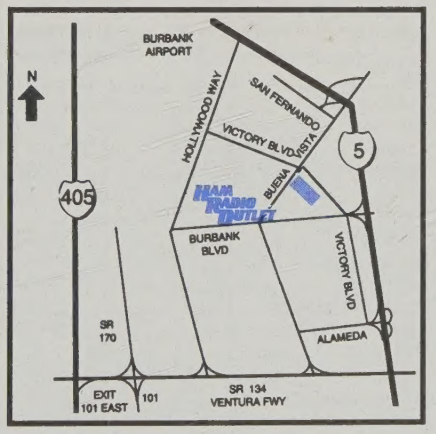


SALEM, NH 03079
224 N. Broadway D-12
(603) 898-3750
(800) 444-0047
24 Hour FAX (603) 898-1041
28 mi. N. of Boston, Exit 2, I-93

Chuck KM4NZ **Mgr**
Marden WB1GGI
Jim WK1V, Barry N1DNU
Peter KI1M
Manuel HI8MT
Paul NW1U, John N1IFL

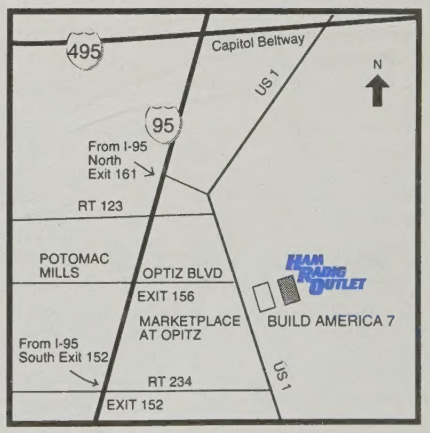
SAN DIEGO, CA 92123
5375 Kearny Villa Rd.
(619) 560-4900
(800) 854-6046
24 Hour FAX (619) 560-1705
Hwy. 163 & Clairemont Mesa Blvd.

Tom KM6K **Mgr**
Ron N6OMW
Jose XE2SJB
Bob KA6EKT



BURBANK, CA 91506
2492 West Victory Blvd.
(818) 842-1786
(800) 854-6046
24 Hour FAX (818) 842-5283

Eric KA6IHT **Mgr**
Stuart K6YAZ
Dave N6HGA
Don KE6QYC



WOODBRIDGE, VA 22191
14803 Build America Drive
(703) 643-1063
(800) 444-4799
24 Hour FAX (703) 494-3679
Exit 161, I-95 South to US 1

Rick AAØQB **Mgr**
Curtis WB4KZL
Lou K4HR, Steve N4SR,
Ed W4NEZ,Scott KT4ER
Mike KA3TMQ,

INDEX

ADI Corporation 38
Advanced Battery Systems 79
Alinco 3-7, 76-77, 86
Alpha Delta 77, 88-89
Ameco 53-54
Ampire 84
Amplifiers
HF 29, 36, 84-85
VHF / UHF 41, 84-85
Antenna Specialists 103
Antenna Supermarket 45
Antennas
Handheld 39, 81, 100, 103, 108
HF 10, 29, 87-89, 91, 93-94, 99
HF Mobile 95-96, 102
On Glass 81, 96, 103, 105
Satellite 98
Scanner 98
SWL 45, 88, 98, 108
VHF/UHF 39, 87, 90, 93-94, 98-100, 103, 106
VHF/UHF Mobile ... 39, 81, 92-96, 99-106
AOR 47
ARRL Products 52-53
Artsci 51, 53
Astron 76
Austin Antennas 102
B & W 82
Baluns / Insulators 88, 109
Batteries 7, 13, 15, 21, 24, 34-35, 78-80
Bencher 42, 82, 109
Belden 109-110
Bird 72
Books 44, 50-53
Butternut 89
Cables
Coax 109
Connecting 19, 25, 84
Data 19, 75
Rotator 110
Callbook 53-54
Cases, Radio 7, 20, 24, 35, 49
Centaur 109
Chargers, Battery 7, 13, 20-21, 24, 34-35, 80
Clocks 71
Coax-Seal 109
Comet 99-101
Communication Specialists 75
Computer Software
CD-ROMs 52, 54
Database 52, 54
Educational / Morse Trainers 20, 54
Packet 41
Radio Control 31
Connectors 75, 97
Connect Works 75
CQ Books 53
Create 98, 118
CSI (Connect Systems) 71
Cushcraft 90-93
Daiwa 72, 77
Diamond 72, 78, 106-108
Digital Communications 83
Dummy Loads 108
Duplexers 96, 99, 101, 104, 107
Duracell 79
Dymek 45
Encoders / Decoders 7, 10, 20, 75
Filters
Band / High / Low Pass 81-83
Noise 19, 30, 82-83
Notch 83
Telephone 83
Force 12 89
Frequency Counters 72

HAM RADIO OUTLET

Serving You From Coast to Coast & Around the World

Order Toll-Free From a Location Near You

Western U.S. / Canada
800-854-6046

Mountain / Central
800-444-9476

Southeast / Central
800-444-7927

Mid-Atlantic / Central
800-444-4799

Northeast 800-644-4476

New England/Eastern Canada
800-444-0047

If Your Closest 800 Number Is Busy, Please Call One of our Other Numbers.

24-Hour FAX Order Lines:
See page 74, 84, or 120 & 121

Garmin 48
Geochron 71
GGTE 54
Global Positioning Systems 48-49
Gordon West School / W5YI 53-54
Grundig 47
Headphones 7, 15, 17, 20, 35, 39, 43, 81
Heil Sound 43
Hustler 94-95
Hy-Gain 87, 109-110
Icom 8-15, 44-45, 76, 86, 102
Internet ..... http://www.hamradio.com
JPS 83
JRC 84-85
Kantronics 40-41
KB6MT Products 53
K-Com 83
Kenwood 16-21, 71-72, 76-77, 86, 102
Keys / Keyers 10, 42-43
Kits 51
KLM 88, 98
Landwehr 84
Larsen 102-105
Lightning / Surge Protectors 77, 92
M² 98, 110
MacHam Radio 54
Magellan 49
Maha 78-79, 84-85
Maldol 103
Masts, Fiberglass 98
Maxrad 98
Meters 29, 72-73
Mikes ... 4, 7, 10, 15-20, 24, 29-30, 35, 39, 43, 81
Mobile Mark 102-103
Mobile Mounts
Antennas ... 75, 95, 97, 101-104, 107-108
Radios 4, 7, 10, 15, 17, 19, 108
Noise Bridge 86
Nye Viking 42, 86
Oak Bay Technologies 75, 82
Outbacker 102
Owl 111
Packet Controllers 40-41
Palomar Engineers 86
Phone Patches 17, 71
Pouch, The 49
Power Strips 75
Power Supplies 3, 10, 17, 29, 76-77
Preamps 10, 84
Premier Communications 39
QRZ! 54
Quantum Instruments 78
Radio Communications 53
Radio Publications 53
Radios, Amateur
Handheld 6, 14, 21-23, 33-34, 38
HF 3, 8-9, 16, 18, 26-28, 36, 44
Mobile . 3-5, 9, 12, 18-19, 25, 30-31, 38, 44
VHF/UHF Base 9, 19, 32
Radios, Other
Aircraft 44
SWL Receivers 13, 32, 45-47
Scanners 50
Ramsey 51
Ranger 44
RB Enterprises 75
Repeaters 30
RF Applications 72
RF Concepts 41, 84-85
Rope 109
Rotators 110-111
Samlex America 76-77
Sangean 45
Satellite / Oscar
Antennas 98
Radios 9, 19, 32
Rotators 110-111
Satellite Telephone 49
Scanners
Antennas 98
Books 50-51
Radios 50
SGC 36-37, 85
Signal Processors 36, 82
Soldering Equipment 74
Sony 45-46
Speakers 7, 10, 15, 17, 19, 20, 24, 35, 39
Standard 22-25
Startek International 72
Station Monitor 17
Store Locations 120-121
Swiech Communications 98
Switches, Antenna 10, 77, 80, 108
Short Wave Listening
Antennas 45, 88, 98, 108
Books 44, 51, 53
Receivers 13, 32, 45-47
Tenna Hitch 103
Timewave Technology 82
Towers 112-118
Tucker 80-81
Tuners, Antenna 3, 10-11, 17, 29, 37, 86
Ultimeter 111
Unarco-Rohn 118
Uniden 50
US Towers 112-117
Valor / ProAm 96-97, 102
Van Gorden 84, 88
Ventenna 98
Vibroplex 42
Voice Synthesizer 10, 17, 19
Weather Station 111
Weller 74
Worldwide Web http://www.hamradio.com
Yaesu 26-35, 45, 71, 76, 84-86, 110

"The FT-920 is packed with really high-tech features!"

"And, it's got 6 meters built in, too!"

"Yeah! Shuttle Jog, DSP--with a 33MIPS* processor--fastest on the market."

"Looks like Yaesu did it again!"

FT-920

All-Mode HF/6m Transceiver

You know the difference--and so does Yaesu. Signals buried in noise and interference miraculously appear at your speaker--the surest indicator of HF quality. As always, cutting-edge technology inside separates the world leader in amateur radio from the rest of the pack. No surprise to you.

What makes the difference? High-performance 33MIPS* Digital Signal Processing (DSP), for razor-sharp selectivity, increased average power output, and voice pattern contour choice; automatic seeking DSP Notch filter and Noise Reduction; built-in high-speed antenna tuner for RX *and* TX; user-friendly DSP Bandwidth controls for enhanced interference reduction; and exclusive Shuttle Jog tuning controls for fine or rapid frequence excursions. For operating efficiency, the FT-920 also has a Digital Voice Recorder and Electronic Memory Message Memory Keyer. Providing up to 100W of adjustable power output on all amateur bands from 160 through 6 meters, the FT-920 uses rugged, low-distortion MOS FET final amplifier transistors. SSB, CW, AM (25W carrier), AFSK, and FSK are built in, with FM, optional.

All of this, and an ergonomically-designed front panel--including Yaesu's renowned Omni-Glow™ display--give you the highest-performing, HF/6 meter rig in its price class.

For more details on the new and different FT-920, call or write for a free brochure, or better yet: hear the difference at your dealer today!

Features

- High Performance 33 MIPS* Digital Signal Processing (DSP) in all Modes with one touch control
- HF + 50 MHz with 100 Watts Output on all Bands
- New Design MOSFET PA Finals
- Built-in High Speed Auto Antenna Tuner including 50 MHz (Antenna Tuner works on both RX & TX)
- Auto Notch/Noise Reduction Control
- Simplified Tuning with Shuttle Jog Control
- Omni-Glow™ Dual Display with Twin VFO Knobs
- Separate FET RF Amplifier for High & Low Bands
- Digital Voice Memory System
- Quick Memory Bank (QMB) Instant Frequency Memory System

*Million Instructions Per Second

YAESU

. . . Choice of the World's top DX'ers

For the latest Yaesu news, hottest products, visit us on the internet! http://www.yaesu.com

The real difference is the signals you hear-- not the ones you see.

State-of-the-Art DSP Bandwidth Controls

FT-1000MP

This HF standout features a high-intercept front end design, EDSP, and built-in Collins SSB Mechanical Filter

©1997 Yaesu USA, 17210 Edwards Road, Cerritos, CA 90703, (562) 404-2700

Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details. Collins is a trademark of Rockwell International Corporation.

ICOM IC-706MKII*

Base station performance with mobile-sized versatility!

The ICOM IC-706MKII HF/VHF all mode transceiver is a powerful combination of next generation technology and ICOM's time-tested craftsmanship. Whether you use the IC-706MKII for base station activity, for mobile operations or on DX'peditions you can't go wrong. Extremely small and compact, this radio packs all of the features of a top class HF rig in a mobile-sized unit.

- Dimensions: 167(w) x 58(h) x 200(d)mm (6-9/16 x 2-9/32 x 7-7/8 inches)
- 2.5 kg (5.5 lbs)

HF+6M+2M!

Cover all modes (SSB, CW, RTTY, AM and FM) from HF to 6 meters AND 2 meters. A powerful 100 watts of output power on HF and 6 meters with 20 watts on 2 meters.

Easy Operation

Switch bands with the touch of a button! The individual band change keys provide quick and easy QSY – the SUB DIAL for easy second VFO operation and RIT adjustment control. Each band stores pre-amp/attenuator and tuner ON/OFF settings.

Other Great Features:

- Enhanced 0.03-200 MHz broadband all mode receive
- Slots for 2 optional crystal filters

- Quiet Thermally Controlled Cooling Fan
- Crossband Split Operation
- Superior Transmit Audio Characteristics
- Large Speaker
- Built-in CI-V serial communications port
- 3 Step Selectable Passband Width (Opt.)
- Detachable Front Panel (Optional OPC-581 required)
- And Much More!

Available early June 1997!

ICOM®
http://www.icomamerica.com

ICOM America, Inc. 2380 – 116th NE
Bellevue, WA 98004 • 425-454-8155

*This device has not been approved by the FCC. This device may not be offered for sale or lease, or be sold or leased until the approval of the FCC has been obtained. All specifications are subject to change without notice or obligation. All ICOM radios significantly meet or exceed FCC regulations limiting spurious emissions. ©1997 ICOM America. The ICOM logo is a registered trademark of ICOM, Inc. 706MKIIHROBC397Y

HAM RADIO OUTLET
933 N. EUCLID ST.
ANAHEIM, CA 92801

Bulk Rate
U.S. Postage
PAID
Permit #4048
City Of Industry
California